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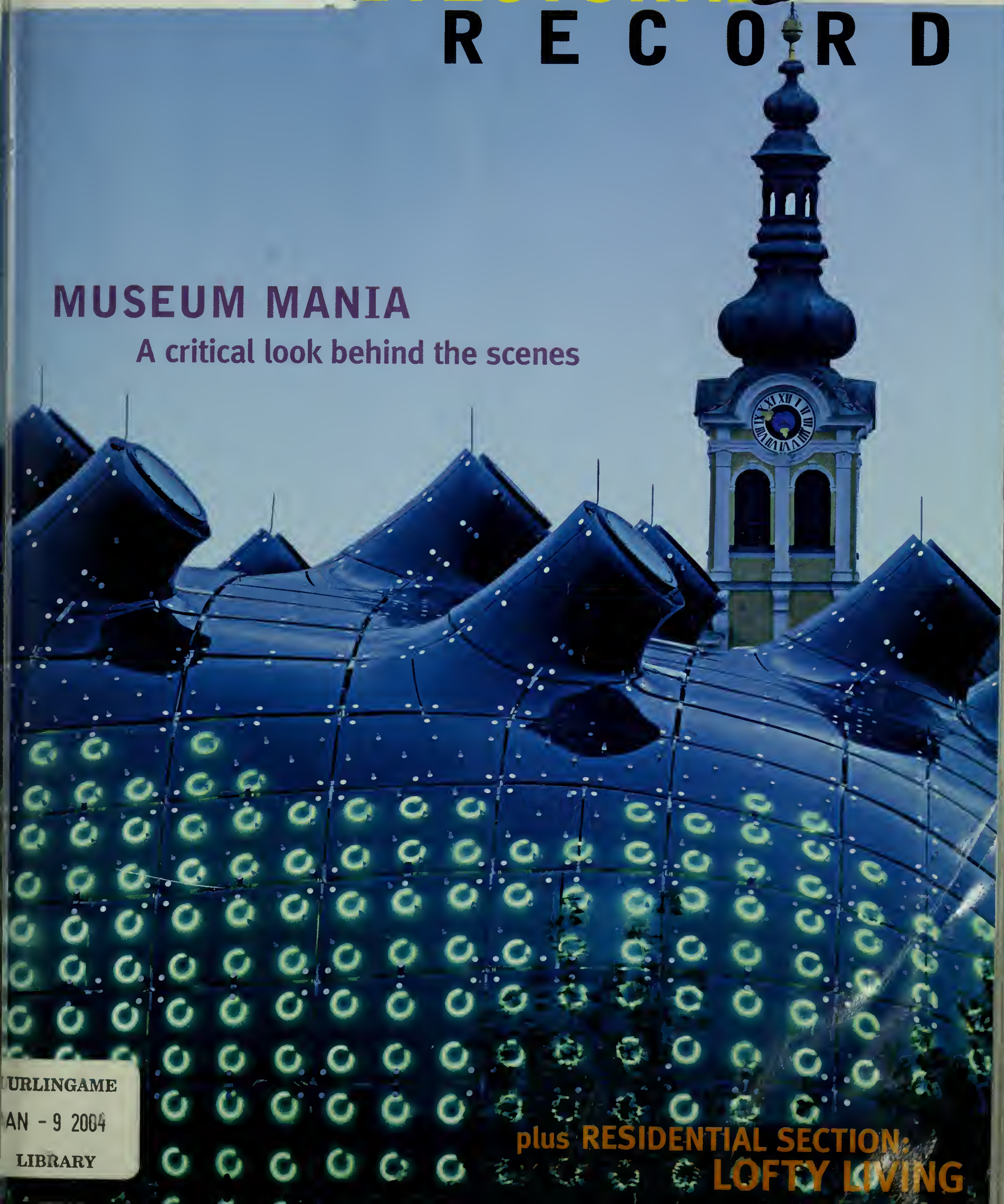

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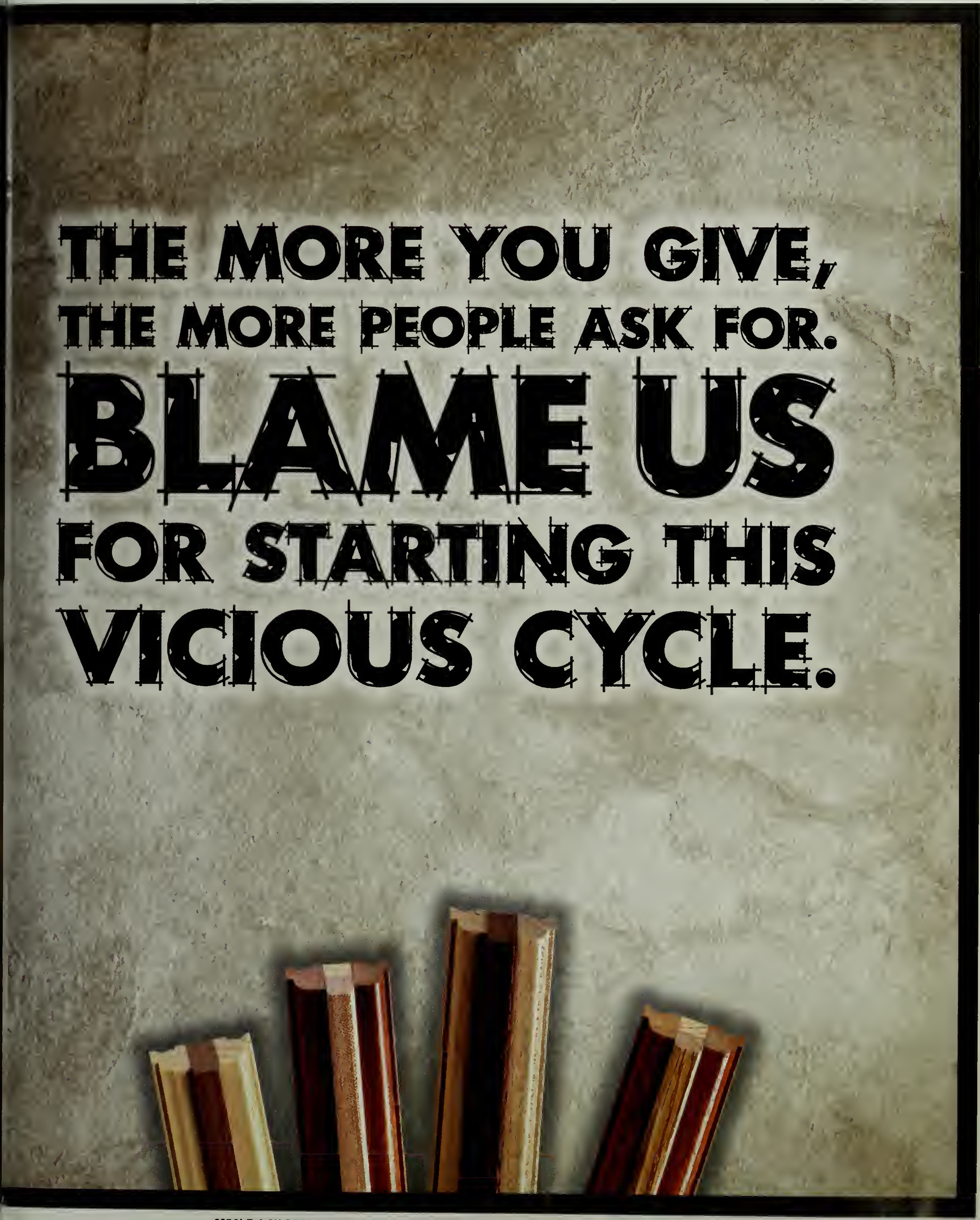

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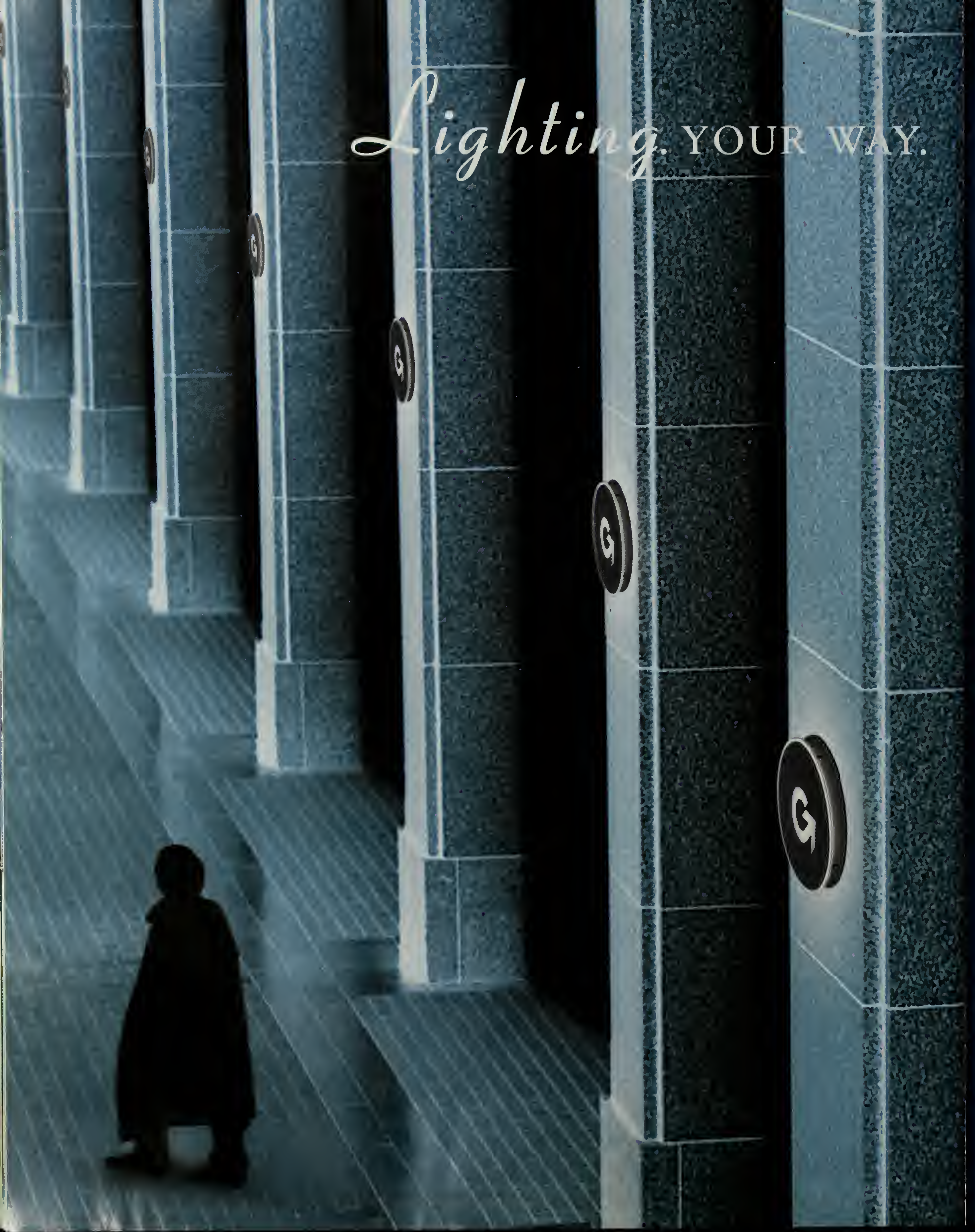
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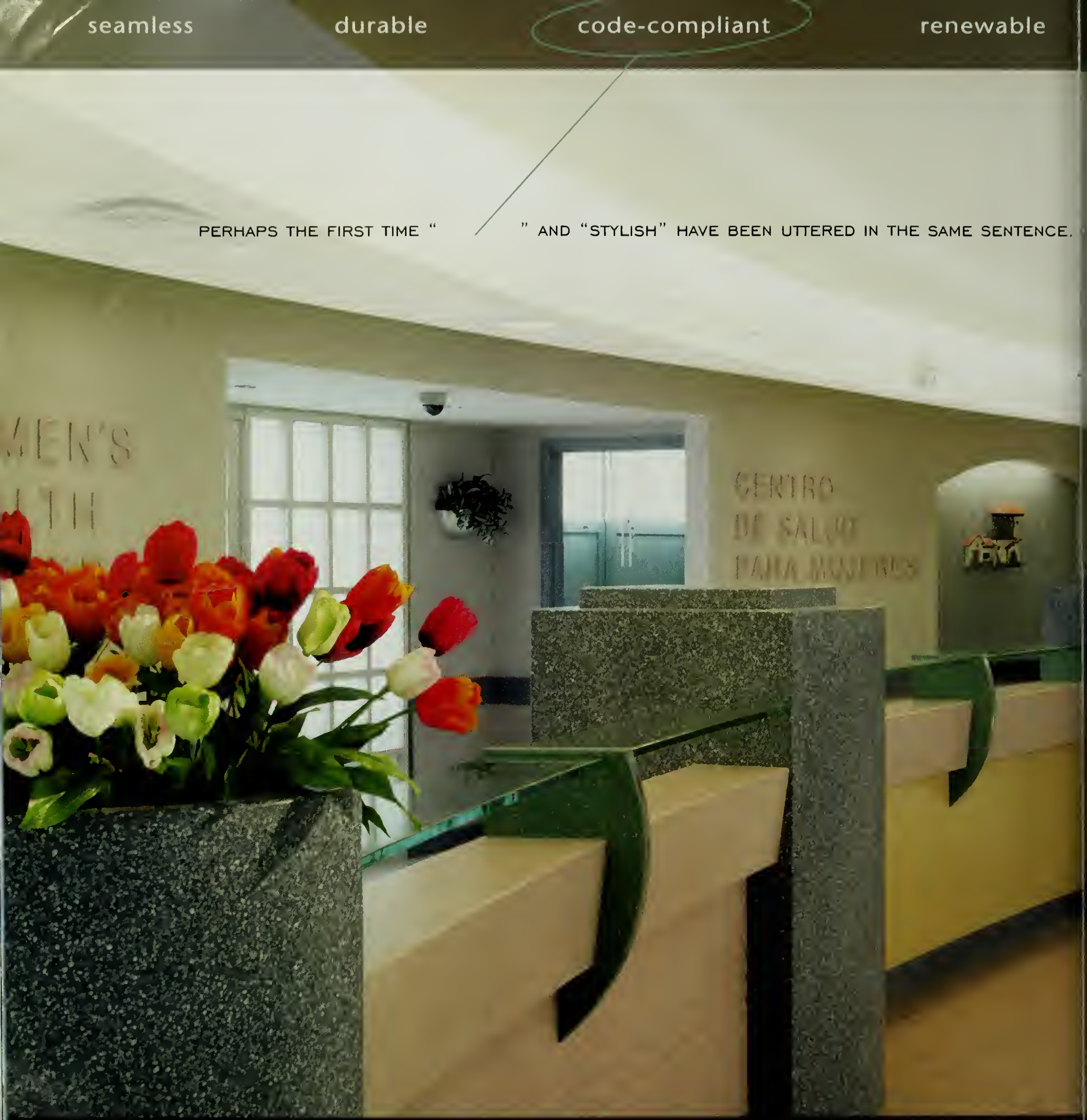
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Daily Headlines

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Building Types Studies: Museums

Architecturally, they are the most significant building form of our era. Gone are the days when museums were seen as dusty mausoleums. Instead, they have become architectural extravaganzas, where you go for performances, films, shopping, dining–oh, and to see the works on view. This month we feature 15 museums, from Spain to Japan, St. Louis to Ithaca, New York.

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Innovation

On the heels of our successful fall Innovation Conference in New York City, we present the Innovation section of archrecord.com. The purpose of this section is to expose the unnoticed and evaluate potential for major change. Both new materials and new ways of combining old ones are in development. Advances in materials science, increased private and public alliances, and the infiltration of digital technology into everything have conspired to create pockets of experimentation and unusual collaborations among architects, engineers, and manufacturers. We invite our readers to continue their own investigation.

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archrecord2

When you can do it all yourself, collaboration is key. Is that a contradiction in terms? This month's archrecord2 Design architect, Todd Farrage, doesn't think so. As architect, metalworker, furniture maker, and sculptor, Farrage teams up when he knows two or more heads will help him concentrate on his strengths for a project. Our Work architects also know the value of sharing. Essex Street Studios has become a mission control center for several thriving N.Y.C. architects.

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Digital Practice

This quarterly digital section includes such features as research on digital fabrication, a green residential tower that has wireless Net power, digital tools that aid carpet and textile design, and in Digital Architect this month: How museums use digital tools to enhance exhibit design. Digital products include management tools, online resources, and design software.

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Residential

New York City has the lion's share of loft living spaces. Some have soaring Italianate windows and cast-iron detailing. Others look like warehouses with loading docks, freight elevators, exposed functional elements, and graffiti-stained front doors. In short, lofts offer a blank tablet for occupants to inscribe with their own ideal of residential comfort. Even the National Association of Home Builders is featuring the loft as the "new American Home of 2004" at its annual convention, the largest gathering of home builders in the U.S., this month. We are pleased, since lofts provide an endlessly variable opportunity for design. Here are a few examples to whet your appetite.

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Lighting

This quarterly section reveals how lighting designers and architects are using new lighting techniques in innovative ways to make lighting function as an integral component of space, whether as a signature visual element or an inherent wayfinding device.

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Hurry Up and Wait

Editorial

By Robert Ivy, FAIA

Wait. That single word may be one of the most difficult to achieve in our frenetic age, but concerning the memorial at the World Trade Center site, the best advice is to slow down, allow time to pass and our perspective to clear, and then to build: We are simply too close to events to commit to such a seminal urban monument. Despite the fact that a winner may have been selected at the writing of this editorial, until construction has already begun, it is not too late to defer the decision and to consider alternatives.

This is not to undervalue the work of a distinguished jury that has labored through an unimaginable, Herculean process, sifting through 5,201 entries submitted in an outpouring of feeling and creative energy. We owe them all—designers and jurists—a debt of gratitude. Nor is it to categorically deny the value of the eight projects that rose to finalist status: Each, in its own way, answered the specific programmatic demands, occasionally artfully or poetically.

However, having examined the models and drawings and visited the Web site, the viewer remains unconvinced and curiously unmoved by the results, which seem to pose the memorials as chilly destinations; correspondingly, the critical response has been almost universally cool. Why do these abstracted designs fail to convince us? The answers coalesce around the role of monuments and memorials historically and suggest why we should wait.

As this magazine has noted, monuments and memorials evolve, as the memories and emotions of succeeding generations shift through time. Unfortunately, the eight solutions offered thus far have been too heavily burdened with the present. Implicitly or explicitly, they have been asked to serve as immediate mnemonic aids for the individual lives lost (on 9/11 and in the 1993 incident); as reminders of the significance of horrific events; as placemakers, sanctifying and segregating holy ground; as mediators, offering points for reflection and transcendence; and as destinations in a vibrant city. Art can only do so much.

Faced with such gravitas, the designers of the eight final solutions understandably resorted to metaphor, employing falling water to conjure a sense of loss or pain, an immense light-filled cloud, which suggests cosmic transcendence, hanging lamps or cenotaphs or engraved glazing or trees to recollect individual lives. All honor and mourn abstractly, standing in and representing events without recreating them, an infinitely preferable treatment to a more literal, figurative one. All speak to this moment but leave lingering questions for future visitors: specifically, what really occurred here?

None would serve as an effective destination, now or in the future. Large subterranean spaces, even those punctuated by light, would provide a gloomy, funereal setting in the heart of Manhattan. Falling water below grade is inevitably dank and uncomfortable; in cold weather, temperature and humidity combine into an inhospitable, damp environment. And what happens to the exposed, undifferentiated ground plane we see in almost all the plans? Amei Wallach, an arts commentator, suggested skateboarders might find the large *open spaces tempting. Otherwise, the building footprints have been left largely unresolved.*

Scale poses a fundamental problem for the competition. Consider that the footprint of each original tower consumed almost 45,000 square feet of space. The site is simply too large for a single, concentrated memorial, an issue that becomes quickly apparent in viewing the disjuncture between the original submissions and the later models. Whereas the first submission boards bristled with ideas, compact and contained, those ideas dissipate when splayed against the multiple acreage of the proposed site. As rendered, the human figure seems antlike and overwhelmed.

For all their artfulness, none of the proposed memorial schemes captures one shred of the immediacy present in the foundation wall left exposed in the Daniel Libeskind plan. The sheer scale of the remaining slurry wall, with its pock-marked gigantism, uniquely relates to the scale of what had gone before—twin towers that had been the world's tallest structures with a 1,368-foot peak. The wall's authenticity, as witness to an obliterated real world, supercedes art and provokes strong feelings in a way no constructed, mediating object could.

Additionally, Libeskind's master plan for the site constitutes memorial making, employing the realities of the place itself, and building up a framework of new structures for contemporary New York in a dizzying way that few monuments could compete with. The entire design relies on rhetorical underpinnings, with its spiraling array of ascending towers, culminating in the recently announced Freedom Tower, excavated foundations, and walkways, including the debated "Wedge of Light." While Libeskind intentionally left space for the memorial to come, as did each architectural team, his own design, entitled Memory Foundations, satisfies much of what we might expect any monument to do: allow us to recollect and move on.

Instead of competing with his strong design, or creating a vacant field of dreams, other suggestions are in order. Here is one, of many to follow. First, provide legal safeguards for the property. Legislation may be necessary to secure the highly valuable property from future development. Then construct a temporary destination within the footprints as a locus of grief, tapping into the strong need for the public and the families of the victims to visit and express their thoughts and feelings. September 11, 2001, prompted a flood of individual expression, from poems and music to candles and flowers, which continues. A wall of remembrance, meant to accept these offerings, could be beautifully and simply built and serve a generation of survivors.

Ultimately, an interpretative museum that houses the history of events at the World Trade Center site should occupy part of this ground, to include the story of the making of the entire complex and the shards of the towers' destruction. Actual steel from the towers, the Yamasaki models, artifacts from the offices, films produced, and biographies of the heroes and the lost—all need a permanent home and a narrative to accompany them, as a recent show at the New York Historical Society demonstrated. The museum could be located, if need be, below grade.

Passage to the museum could then proceed through a transitional zone, a significant processional way allowing visitors to alter perceptions and change gears psychologically from the city's pace. The passageway could descend from the open air to a darkened space below ground, much as these memorial makers have suggested—a walkway shrouded in a translucent cloud of remembrance, or perhaps one punctuated by hanging lanterns or trees. Its ultimate goal, however, would no longer be darkness or the void, but a real place, enlivened by human activity, that explains events and offers a search for meaning. To arrive at that understanding, to more fully comprehend the aftermath, we all need time before we build.

Robert Ivy

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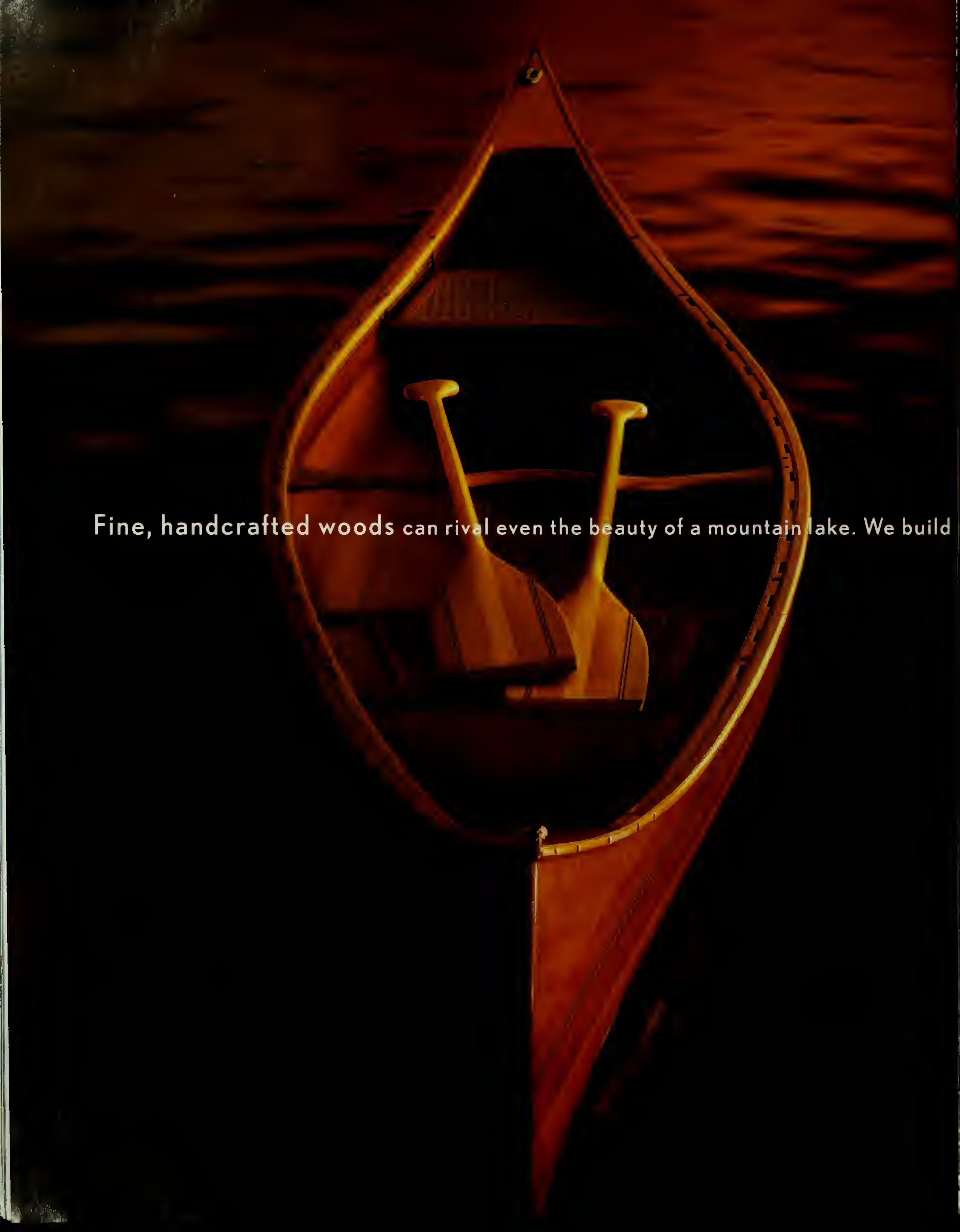

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Letters

Good doers

I want to compliment you on your September 2003 Practice Matters column ["Altruism in Architecture," page 87]. Too often the community service that architects provide is overshadowed by other professions, and as an industry we need to recognize the value that pro bono services offer those communities that otherwise would not have access to architects.

Your article clearly identified the challenges in supplying pro bono services. What it neglected to highlight, however, are the many community design centers, such as the Neighborhood Design Center, that provide a vehicle for architects who want to volunteer their services.

The Neighborhood Design Center (NDC) was founded in 1968 by a group of architects and planners who volunteered their time and talent to help Baltimore's low-income communities rebuild during that time of urban disinvestment and civil rights protests. Over the subsequent decades, the organization has broadened its scope of services and its volunteer base to provide a range of pro bono design and planning assistance to low- and moderate-income communities.

In 2002, 42 community projects were completed, with an additional 32 in progress, in our Baltimore and Prince George's County offices. More than 140 volunteers provided pro bono design and planning assistance totaling nearly $250,000 of in-kind professional services.

And we are not alone. The Association for Community Design is a clearinghouse for learning about other such centers across the country (www.communitydesign.org).

I hope that more articles like yours can be featured that emphasize the community design services that architects and design centers are providing. For more information about the Neighborhood Design Center, visit www.ndc-md.org.

—Mark Cameron, AIA
Executive Director
Neighborhood Design Center
Baltimore, Md.

It's a wonderful life

When I saw the title of Robert Campbell's Critique of the Italian hill towns [October 2003, page 67], I thought, oh boy, here we go—even ARCHITECTURAL RECORD has succumbed to *Under the Tuscan Sun*. But upon reading, I found it to be informative and interesting. However, I'm writing out of a frustration that I feel over the fact that we Americans can't seem to get past the theme park areas where we might learn the real lessons to be found in thriving Italian cities.

Over the past few years, since getting together with my Italian wife and partner, I've spent a lot of time in the smaller cities of the Italian northeast. Cities of the Veneto region like Portogruaro and San Dona di Piave are thriving. In these areas, one finds an incredible mixture of old Italian architecture, active farming, and a more than healthy light industry. I can ride a bicycle from the 400-year-old farmhouse of my wife's family through beautiful grape vineyards, stop to pick a few wild berries along the way, and turn a corner only to come upon one of the thousands of small manufacturing plants with stainless-steel air scrubbers (the pollution laws are very strict) along its sides. I can turn another corner to come upon one of the little villages, with its small market and church, and then just a bit farther, ride by a rather large winery exporting wine all over the world.

I tell my friends that cities like these in Italy are like Del Mar or Carmel in California, but there are differences—working middle-class and even poor people get to live in these Italian cities, too.

We architects and city planners owe it to ourselves and our clients to get away from the Sienas and Pienzas and see the Italy not spoiled by tourists. We might learn that protecting a quality of life is not about stricter zoning laws, height limits, floor area ratios, or requiring all new homes to have a front porch. Maybe it's about putting families first, making sure that people can find jobs close to home, allowing density to rise to a level where homes are affordable.

—John Helm, AIA
Helm & Melacini Architects
San Diego, Calif.

So Tschumi

Why did you give Bernard Tschumi six valuable pages of print for the FUI School of Architecture [October 2003, page 102]? The project looks more like a 60s industrial park than a place of learning. No matter how you edit the article, I just can't imagine this being a pleasant or inspirational place to learn the craft of architecture. The "two boldly colored pavilions" seem to have borrowed their super graphics from a public pool. They are so introverted in plan that they couldn't possibly contribute to this concept of "Academic Village" that your article proposes. I doubt the in-between spaces are "as important as the ones inside." They look completely isolated and devoid of pedestrian references. The flanking classroom and office buildings are so ruthlessly generic that they recall some of the more Fascist examples of Aldo Rossi's work. From the photos in the article, the most successful space seems to be the rather understated, low-budget design studios. But then get a look at the outdoor walkway. Brutal!

Academic Village? You are throwing your accolades around much too generously.

—Ron van der Veen, AIA
Seattle, Wash.

A lesson learned

One of the most rewarding aspects of the design of educational projects is the faculty and staff that participate in their development. After reading your feature on the design of Tschumi's architecture building, I was happy to discover he had found a similar experience to ours at Florida International University. We worked on a 75,000-square-foot University Foundation building constructed concurrently with the School of Architecture. The design interest spearheaded by the university president, Modesto Maidique, and augmented by the faculty, students, and users of the building, was invaluable to its success. The campus setting and heightened level of intellectual experimentation provide a distinct platform to discuss, design, and execute ideas. The team generated the ideas, and thus each team member took ownership of them. Ultimately, it resulted in a building much better than could be conceived individually. Often architects are criticized as being self-absorbed when they create their designs for buildings. The educational building provides a unique avenue of collaboration distinct from other building typologies.

—Carl F Knutson
via e-mail

Corrections

In the October News article about Chicago's Soldier Field [page 30], Tony Montalto was incorrectly referred to as the project's lead designer. Tony Montalto, along with Joe Dolinar of Lohan Caprile Goettsch, served as the stadium project director. Benjamin Wood and Carlos Zapata are the lead designers of the stadium at Soldier Field.

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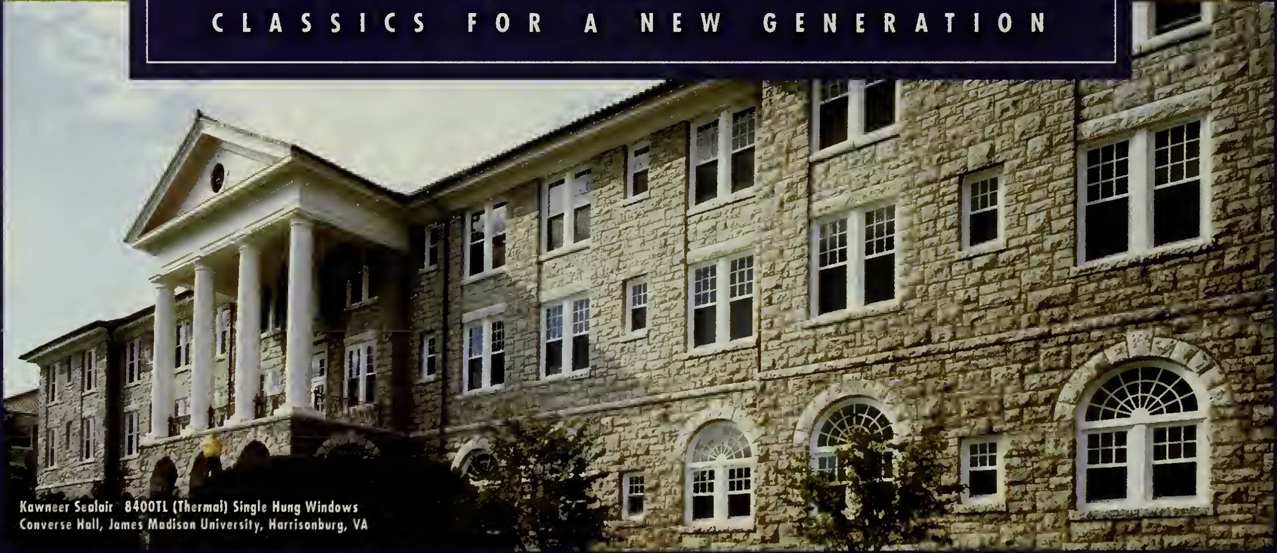

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Record News

Highlights Oklahoma City Federal Building completed p.26
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Modernist masterpieces destroyed in L.A. p.30
On the Boards: TEN Arquitectos, Allied Works, more p.32

REBUILDING LOWER MANHATTAN

Freedom Tower's design unveiled

A rendering of the tower within the skyline.

After months of strained collaboration, Daniel Libeskind and David Childs, FAIA, revealed their design for the 1,776-foot "Freedom Tower," the first new office building, and the tallest, at the World Trade Center site.

The plan, revealed at Federal Hall in Lower Manhattan on December 19, 2003, is wider and less angular than the the sketch that Libeskind submitted to the Lower Manhattan Development Corporation last winter.

The largely glass tower adheres to the asymmetrical street grid, torquing upward to the top of its office portion, at 70 stories. It then moves to a light structure of tension cables, integrated with wind-harvesting turbines (hoped to provide 20 percent of the building's power), which top at 1,500 feet, and terminates with an off-center, 276-foot spire meant to echo the upraised arm of the nearby Statue of Liberty.

Despite changes to his initial design, Libeskind said the new form "honors the principles of the site plan," while New York Governor George Pataki, a major player in the architects' collaboration, said that Childs's contribution "adds to the beauty of the building."

In addition to 2.6 million square feet of office space, the building will include public lobbies, retail, and transit components at the bottom levels and observation decks and a restaurant at higher levels.

It is designed with a solid concrete core, with extra support from its top level steel cables and its twisting, diagonal structural grid. Other safety elements include extra-strong fireproofing, biological and chemical filters in the air-supply system, and very wide stairways.

A crystalline Freedom Tower model (left).

The tower is expected to break ground in mid-2004, top out in mid-2006, and be completed by the end of 2008.

Critical response is mixed. Many have lauded the building's twisting form and technical innovations, but Martin Filler, architecture critic of the *New Republic*, said he found the structure "awkwardly porportioned," and, ultimately, a "slicked up developer's building with some vague echos of Libeskind's original plan." *Sam Lubell*

The "Lucy" House, by Mockbee's Rural Studio (above); Lake/Flato's Center For Art in Fort Worth, Texas.

Regional Acclaim: Mockbee, Lake/Flato win 2004 AIA Awards

In a powerful nod to regional architecture, the American Institute of Architects announced that it will give its 2004 Firm Award to Lake/Flato of San Antonio, Texas, and its Gold Medal for individual excellence to the late Samuel Mockbee, FAIA, head of Auburn University's Rural Studio. The awards will be presented March 3 in Washington, D.C.

Lake/Flato Architects was founded in 1984 by two protégés of highly influential Texas architect O'Neil Ford, and in many ways reaffirms his legacy of clarity, honest use of materials, sensitivity to place, and an absence of pretense. "One of the reasons we stayed in San Antonio is because of its tradition of responsive Modern work," says partner David Lake. "We've spent 19 years making architecture that is particular to its place."

Lake/Flato has won more than 90 regional and national design awards, including AIA Honor Awards in 1992, 1997, and 1999. Among its recent projects are the Crow Education Pavilion at the Dallas Arboretum, the Center for Art in Fort Worth, and the SBC Arena, home of the NBA's San Antonio Spurs.

"Sambo" Mockbee, who died in 2001, founded the Rural Studio, which has worked since 1992 to provide shelters for Alabama's rural poor communities. His students changed ordinary materials into extraordinary architecture, building new houses and completing projects like a farmer's market, a children's center, a chapel (made mostly from used tires), and a community center. They have also completed hundreds of repairs and renovations.

Mockbee's own work, delicately quirky in touch, drew inspiration from vernacular sources such as overhanging roofs, rusting metal trailers, and dogtrot houses. His awards include the National Building Museum's first-ever Apgar Award for Excellence in 1998; one of only 25 "genius" grants from the McArthur Foundation in 2000; and a Mississippi Governor's Award for Excellence in the Arts in 2001.
S.L., David Dillon, and Andrea Dean

Farnsworth House Saved **With a last-minute fund-raising push, preservation groups purchased Mies van der Rohe's legendary Farnsworth House. See Residential News, page 157.**

OFF THE RECORD

The AIA's Topaz Medallion for excellence in architectural education has been given to Stanford Anderson, cofounder of MIT's doctoral program in History, Theory and Criticism of Architecture, Art, and Urban Form.

Harold Adams, FAIA, has retired as chairman of RTKL Associates, where he served for 34 years. Paul F. Jacob III, AIA, has replaced Adams as the new chairman of the firm's board.

Architect Ken Shuttleworth, who sketched the original plans for the nearly completed Swiss Re headquarters, known also as the "London Gherkin," has decided to leave Foster and Partners.

Architect Eason Leonard, cofounder of I.M. Pei & Associates, now Pei Cobb Freed & Partners, died of pneumonia on November 13, 2003. He was 83.

World Trade Center developers Silverstein Properties settled a long-running dispute with its lender, GMAC Commercial Mortgage Corporation. The Port Authority of New York and New Jersey will spend $563 million to buy out GMAC.

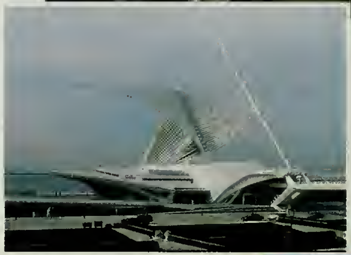
Michael Houlahan, head of Hedrich Blessing Photographers, an architectural photo firm, died on November 5, 2003, of cancer.

Rafael Viñoly has been selected to design the expansion and renovation of Carrasco International Airport in Montevideo, Uruguay.

Five architects with the Princeton, New Jersey–based firm The Hillier Group have departed to form their own office, known as ikon.5.

The San Francisco Conservatory of Music, designed by Simon Martin-Vegue Winkelstein, has broken ground. The $80 million building is expected to be completed by 2006.

Financial issues force museum closures, cancellations



Top to bottom: Frank Gehry's New York Guggenheim (cancelled); Santiago Calatrava's Milwaukee Art Museum addition (overbudget); Steven Holl's Bellevue Art Museum (closed); Rem Koolhaas's Guggenheim Las Vegas (closed).

The closure of the Bellevue Art Museum in Seattle in September was the latest bad news in a string of museum projects that have been delayed, downsized, closed, or even cancelled before construction.

A shortage of operating funds was the culprit in the "temporary" closures of the Bellevue, designed by Steven Holl, AIA, and the Guggenheim Las Vegas, by Rem Koolhaas, last year, as well as the shelving of Frank Gehry, FAIA's $950 million, 400-foot-tall scheme for a new Guggenheim facility in Manhattan. In the case of Bellevue, a fund-raising campaign prior to the museum's closing to raise an additional $3.1million yielded only $1.7 million.

Meanwhile, plans by Renzo Piano to redesign the Art Institute of Chicago have been downsized, with the 290,000-square-foot project taken down to 220,000 square feet, partly as a means to control costs. And the $200 million–plus replacement for the Los Angeles County Museum of Art, to be designed by Rem Koolhaas, was quietly killed this past spring. It is likely to be replaced by a $50 million addition to the existing complex by Piano.

While the poor economy of recent years is one of the most frequently cited reasons for the troubles facing many museums, money alone may not provide the full answer to their problems. Ron Fredman, vice president of marketing for the Hartsook Companies,a Wichita, Kansas–based consultancy, thinks some institutions may not be doing enough outreach.

"What often happens is that organizations tend to become reliant on a small handful of major donors," he says. In those cases, museums "can run the risk of floating up and down with their fortunes."

Anne Butterfield, a Harvard, Massachusetts–based fund-raising consultant to museums, has her own opinions as to why architecturally ambitious projects get into trouble. In her view, much of the trouble is architecture. In the current museum environment, she said, "There is a notion that every new (museum) building has to be a signature by a famous architect," adding that "the building drives the project, not the content or the programming of the museum," she said. The result, according to Butterfield, has been a lot of overbuilding.

"It is no longer unusual to see projects of $200 million to $300 million, and these are not all from major institutions in major cities. That's a lot of money."

For example, Santiago Calatrava's addition to the Milwaukee Art Museum opened to near-universal acclaim in 2001, with a budget of about $100 million, which was higher than the $50 million originally projected by museum officials. At last report, the project needs to raise an additional $20 million from donors.

Despite many museums' woes, the reports of charitable giving appear fairly healthy. In 2002, Americans (including corporations, foundations, and individuals) gave a record $241 billion to charitable causes, including the arts, according to Giving USA, an annual report issued by the Center on Philanthropy at Indiana University. That sum follows a previous record set in 2001 for $239 billion.

Yet foundation giving is slightly down, and that decrease hits the art world hard, because museums are highly dependent on foundation gifts—in some cases as much as 10 percent of their entire portfolio.

Still, Fredman says cost overruns and debt are not necessarily the name of the game in museum construction, pointing out that several high-profile projects, including Tadao Ando's highly praised Modern Art Museum of Fort Worth, came in on time and on budget.

Morris Newman

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Finishing up the new federal building.

Safer Oklahoma City Federal Building opens to tenants

The new Oklahoma City Federal Building, replacing the Alfred P. Murrah Federal Building destroyed by a truck bomb in 1995, received its first tenants, the Small Business Administration (SBA) of Oklahoma City, the week of December 8, 2003.

The structure, designed by Carol Ross Barney + Jankowski Architects of Chicago, stresses high security while not seeming, says firm principle Jim Jankowski, like a "fortress."

For extra security, the three-story, horseshoe-shaped building is placed away from the street and includes concrete bollards to avoid car or truck bombs. It has a steel-plated main entrance and employs concrete on its solid walls and outer edges.

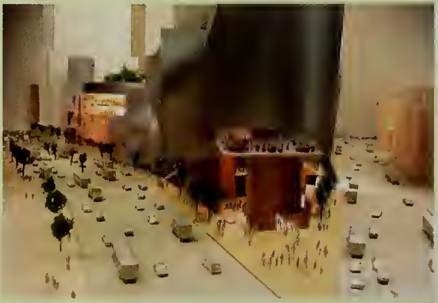
Still, the building, which faces north toward the memorial to those killed in the bombing, appears light, with a large glass curtain wall, and has many security features that are not immediately obvious. Concrete lobby blast walls are integrated into the design, as is the glazed, shatterproof window system designed to resist blasts. The building is also engineered to prevent progressive collapse, which destroyed the Murrah building. "We tried to make [the security elements] a part of the design so they didn't hit you in the face," says Jankowski.

Jerry McKaskle, a loan officer at the SBA who worked in the old federal building and whose sister died in the 1995 bombing, originally was strongly against moving into the building, but now has come around.

"Now I see that all my trepidations were unfounded. It's built like a fortress," he says. Other major tenants plan to move their offices to the building in the coming months, although some workers have objected. *S.L.*

Gehry proposes plan that would transform Brooklyn

Frank Gehry, FAIA, joined at a press conference by New York Mayor Michael Bloomberg and developer Bruce Ratner, recently unveiled his designs for Brooklyn Atlantic Yards, a giant development in downtown Brooklyn that, if built, will include stores, housing, offices, and, most notably, a new basketball arena for the New Jersey Nets. The project, Ratner pointed out, will only happen if his investment team lures the Nets to Brooklyn.

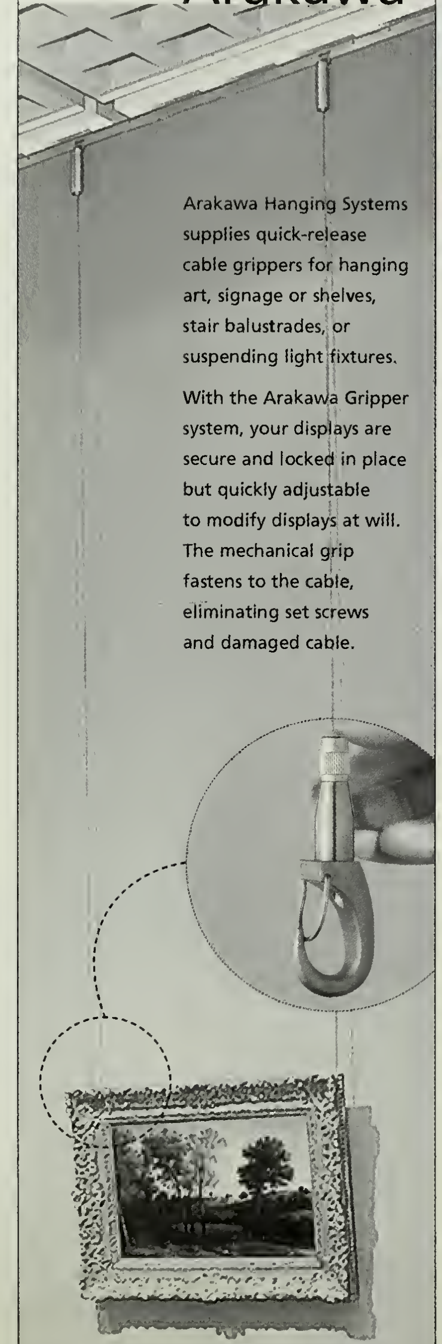


The $2.5 billion development will include 2.1 million square feet of office space, 4.4 million square feet of residential space, 300,000 square feet of retail space, and an 800,000-square-foot, 20,000-seat sports arena. The arena, still in early planning stages, will be clad in titanium, with two glass facades and a roof garden and rooftop skating rink.

"This project is the capstone of the renaissance of Brooklyn," said Mayor Bloomberg. Gehry stressed that the arena would maintain the intimacy achieved with his Walt Disney Hall, a quality missing from most modern sports arenas. "We're designing it from the inside out," he said, adding that he is touring most of the best stadiums in the country for more ideas.

The tallest building in the development will be a 44-story, free-form office building that Gehry stressed would assure an "iconic presence as a centerpiece." Meanwhile, Olin Partnership will be designing 6 acres of landscaped green space for the project.

While the plan met with enthusiastic approval from Mayor Bloomberg as well as from Brooklyn politicians on hand, several neighborhood residents were fiercely protesting outside. "It's too big, it's too obtrusive, and it's in the wrong place," said Patti Hagan of the Prospect Heights Action Coalition. ***S.L.***



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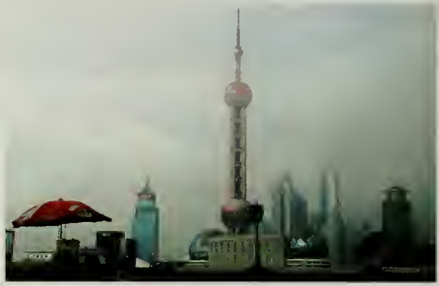
Shanghai leaders debate skyscraper height limits

Looming over the sprawling city of Shanghai is proposed legislation that would put strict constraints on commercial and residential development. The Shanghai People's Congress is considering an amendment to a law that would limit building heights to 18 stories.

There are several reasons for the new law. First, since the SARS epidemic, there is a growing desire for operable windows in all buildings—which most skyscrapers do not have—in order to provide adequate ventilation for office workers. Second, some see the government taking action against an overheated economy by limiting business growth. Third, some see the measure as a way of encouraging habitable spaces downtown instead of intimidating towers filled only with work spaces.

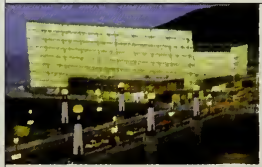
Perhaps the biggest reason for the height limit is speculation that if the 2,000 skyscrapers currently in planning stages are built, the weight could cause the city to sink and the subway system to collapse. Some geologists say that Shanghai is already slowly sinking under the weight of too many buildings. Today the city has over 4,916 buildings of eight floors or more, with 2,800 over 18 stories tall, including the 1,380-foot Jin Mao Tower, designed by Skidmore, Owings & Merrill, and the 1,614-foot Shanghai World Financial Center, by Kohn Pedersen Fox, now under construction. As a result, the city has been sinking at a rate of 1.5 centimeters annually. The Lujiazhui financial district, a former marsh area housing a dense concentration of skyscrapers, sank 3 centimeters last year.



Shanghai's skyline, from across the Huangpu.

Geologists say the city's worsening subsidence is due to overexploitation of underground water supplies in addition to the weight of buildings. Shanghai's growing population of 16 million has placed pressure on the city to pump from deeper underground to find good quality water, increasing the risk of subsidence.

But there could be many undesirable results of the measure. "The Chinese are learning the worst lessons from Americans," says Scott Springer, an architect at Kohn Pedersen Fox. "The proposed solution will make things worse," Springer claims. If building in Shanghai continues to spread out rather than up, he says, certain aspects unique to Chinese cities, such as ancient neighborhoods, winding streets, and even bicycle parking, could be lost. With Shanghai's growing population, it also seems likely that sprawl and traffic congestion would increase. Open spaces, such as the area between Pudong and the airport, would probably be lost to low-density development. Perhaps in a not-so-distant-future, businessmen from Los Angeles will sit in Shanghai traffic feeling right at home. *Tony Illia and Karen Lindskog*



Moneo's Kursaal Auditorium.

Moneo collects 2003 RIBA Gold, Koolhaas to win in 2004

Spanish architect Rafael Moneo was awarded the Royal Gold Medal at the Royal Institute of British Architects (RIBA) on Wednesday, November 12, 2003. Given in recognition of a lifetime's work, the Royal Gold Medal is approved personally by the Queen and given annually to a person or group of people whose influence on architecture through a distinguished body of work has had a truly international effect.

A prolific architect, Moneo's work includes the Thyssen-Bornemisza Museum in Madrid, the Davis Art Museum at Wellesley College in Massachusetts, the Audrey Jones Beck Building for the Museum of Fine Arts in Houston, and Our Lady of the Angels Cathedral in Los Angeles. Work under construction includes the Bazaar in Beirut, and the Prado Museum extension and the new Mother and Children's Hospital, both in Madrid.

A few weeks later, Pritzker Prize–winner Rem Koolhaas, designer of structures like the Netherlands Embassy in Berlin, the master plan and Grand Palais for Lille, France, and the upcoming CCTV headquarters in Beijing, was named the 2004 recipient of the award. He will collect the Gold Medal next fall. *Lucy Bullivant*

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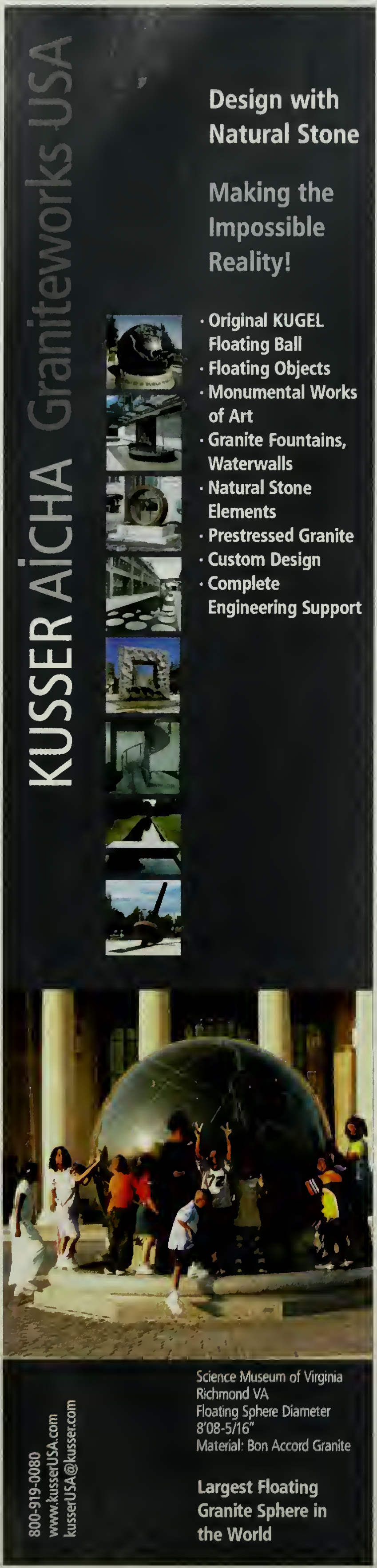
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Modernist masterpieces being torn down around Los Angeles

It is not unusual to hear Los Angeles derided as a preservation-free zone—a place that has little respect for history, and where culture is manufactured and, ultimately, disposed of. A cliché, yes, yet a recent rash of demolitions of important Modernist houses suggests there may be at least a faint ring of truth to it.

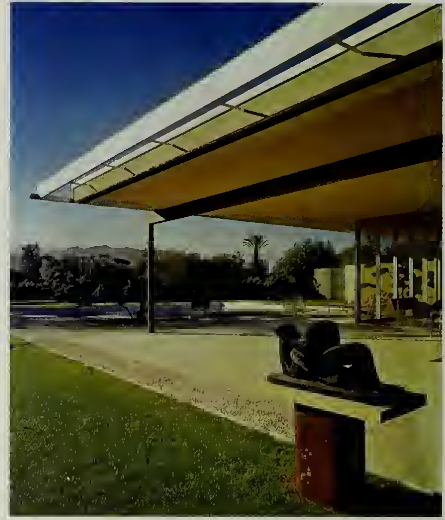
Among the more significant losses over the past two years have been Richard Neutra's 1963 Maslon House in Rancho Mirage, as well as Rudolf Schindler's 1924 Packard House in San Marino and his 1928 Wolfe House on Catalina Island. In all cases, new owners decided to level the existing houses to make way for new designs.

Schindler, Neutra, and their disciples created hundreds of Modernist residences in the early to mid 20th century that are scattered widely throughout the metropolitan area, more than in any other American city.

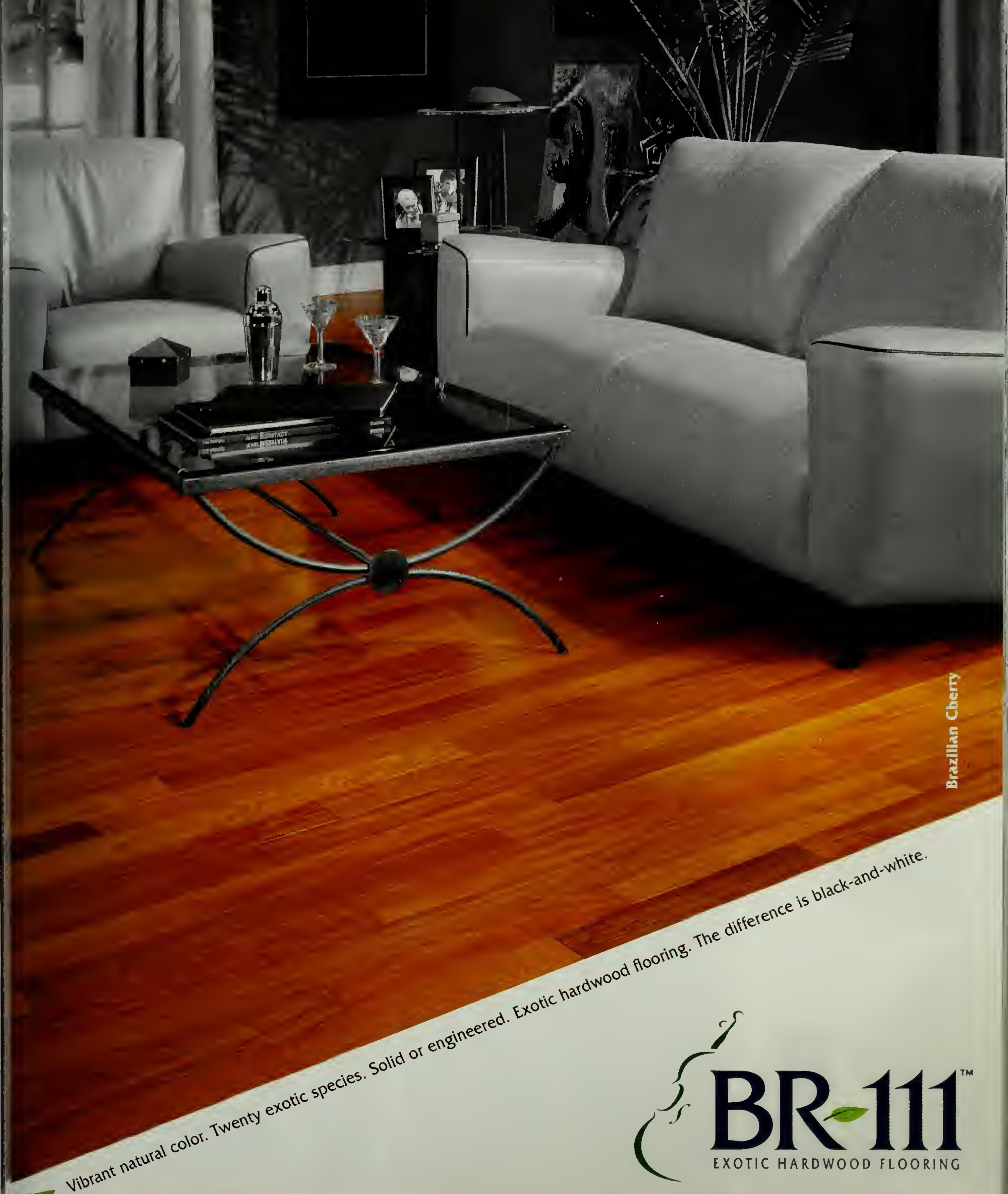
The Wolfe House occupied a dramatic site on a steep hillside. Schindler's use of cascading forms with cantilevered decks have prompted some observers to wonder whether the house might have been an inspiration for Frank Lloyd Wright's 1934 Fallingwater. Neutra's Maslon House was considered a pure example of mid-century Modern, with open floor plans and extensive glass leading out to a large parklike yard with pool. It was in pristine condition at the time of its demolition.

While a snug house on a spacious lot might have been just right for mid-20th century purposes, California's rapidly rising property values have changed the economics of buying such properties. "What's driving many of the transactions are the insane property values in California," says Ken Bernstein of the Los Angeles Conservancy. "Two-bedroom bungalows on the city's West Side are now routinely priced between $800,000 and $1 million. With the majority of property value obviously in land, people pursue the lot rather than the architecture." With prices nearly doubling over the past three years, prospective buyers look at a relatively small, older house on a large lot as a good candidate for a teardown, to make way for a larger, more accommodating contemporary design.

Take Neutra's 1941 Maxwell House: New owners bought the 1,700-square-foot house a year ago for $1.6 million—paying almost $1,000 per square foot. Attracted by the 13,000-square-foot lot in a neighborhood of larger homes, the buyers had plans for a new house on the property, going so far as to get an approved demolition permit. Alert preservationists, acting quickly, stayed the demolition and nominated the house for monument status, effectively saving the house.


Neutra's Maslon House, recently destroyed.

Unfortunately, no comprehensive survey of historic properties exists in Los Angeles. The Getty Conservation Institute, which is laying the groundwork for such a survey, estimates that less than 15 percent of greater Los Angeles has been surveyed up to now. Only if a party formally proposes a property for a landmark designation does it merit review by the Los Angeles Cultural Heritage Commission, currently run by a staff of two (the comparable Landmarks Commission in New York City has a staff of more than 50). According to some estimates, only about 2 percent of buyers understand and appreciate architectural properties. Yet this well-informed minority has not only prevented the demolition of several important properties—America's only Oscar Niemeyer residence, located in Brentwood, was resold to an afficionado after being briefly threatened—but has also been instrumental in restoring them. Ex-Gucci chief Tom Ford has spent $2 million restoring a Neutra House, while production company owner David Zander has spent $4 million on a ground-up restoration of a Frank Lloyd Wright house in Pasadena known as La Miniatura. Yet the threat remains. In the Los Feliz neighborhood, a Wright house sits, stripped, waiting for a savior. And the fate of the newest Neutra to come on the market, a house in Pacific Palisades, is anyone's guess. *David Maurer*



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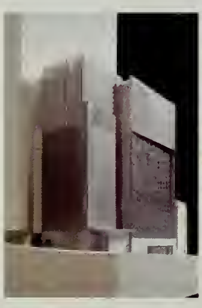
Seattle Art Museum unveils Allied Works' expansion design

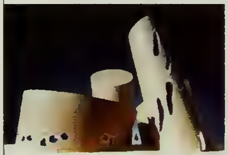


Cloepfil's SAM expansion includes Weiss/Manfredi's Olympic Sculpture Park (above).

Brad Cloepfil of Allied Works Architecture, Portland, Oregon, unveiled his design for a 300,000-square-foot addition to Venturi Scott Brown's 1991 Seattle Art Museum (SAM). The 16-story, steel-and-glass expansion is immediately north of the existing 5-story concrete structure. A four-story brise-soleil will alter the Minimalist grid as it shifts to accommodate changes in daylight levels or with art exhibitions within.

To break down the barriers between floors of the essentially vertical museum, Cloepfil proposes a series of offset, double-height galleries that allow visitors to see up and down within the museum as they circle through exhibitions. "Part of Allied Works' ingenuity is in creating a flow of light and people through the space," says SAM director Mimi Gates. Washington Mutual will lease the upper floors and relinquish them as needed, with SAM eventually tripling its current size to 450,000 square feet. Construction is scheduled to begin mid-2004, with the museum occupying the first 95,000 square feet in 2007. *Sheri Olson, AIA*

Johnson designing Children's Museum in Guadalajara



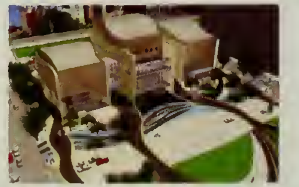
Philip Johnson Alan Ritchie Architects has been selected to design the Children's Museum of Guadalajara, a 54,000-square-foot building on the outskirts of the city.

The museum features unusually morphed cubes, cones, cylinders, and pyramids: an experiment with traditional geometry that is new for Johnson, who long professed the superiority of simple shapes over manipulation of form. These forms are laid out on a small island to be separated from the mainland by a "springy" bridge.

The project is the brainchild of Mexican businessman Jorge Vergara, who has commissioned several projects from prominent architects for the JVC Center, a large-scale development outside the city.

Other cultural projects under way by the firm include a 370-seat recital hall for the Pennsylvania Academy of Music in Lancaster. *S.L.*

Cincinnati's Underground Railroad Museum near completion



The National Underground Railroad Freedom Center is scheduled to open this summer along the banks of the Ohio River in Cincinnati. The late Walter Blackburn of Indianapolis-based Blackburn Architects was lead designer for the 158,000-square-foot, $110 million museum. His firm worked with BOORA Architects of Portland, Oregon.

The architects created three pavilions connected by glass bridgeways to symbolize the cooperation vital to the success of the Underground Railroad. The middle structure is five stories tall with a mix of public and administrative space, while the two side pavilions each contain three floors for exhibitions. The museum also includes a performance theater, an eternal flame of freedom, and a full-service café.

Rough travertine stone from Tivoli, Italy, covers the east and west faces of the building. On the north and south, copper panels complement the stone and will change in appearance as the center ages. Many of these exterior walls curve back and forth in a nod to the Ohio River, where historians estimate as many as 40 percent of all escaping slaves made their way to freedom.

Also included is a slave pen dating back to 1833. The 20-by-30-foot, two-story log structure was rescued from a farm in Maysville, Kentucky. Virtual tours of the building are available at www.freedomcenter.org. *Michelle Taute*

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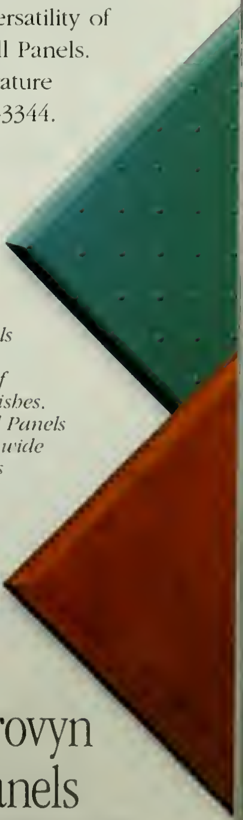

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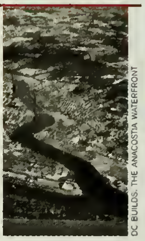
Building a Better Los Angeles
Katherine Perez, executive director of the Transportation and Land Use Collaborative of Southern California

January 22
McKim, Mead & White
Samuel G. White, principal of Platt Byard Dovell White, New York, NY

January 27
Industrializing the Process of Producing Energy Savings
Gregory Thomas, president of Performance Systems Development

exhibitions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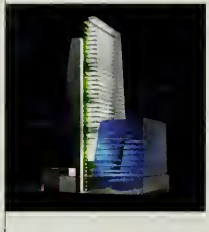
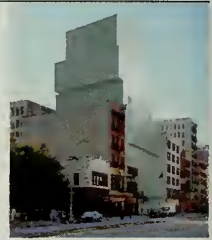
TEN Arquitectos designing new tower in Harlem



Enrique Norten of TEN Arquitectos is designing a 380-foot-tall, 550,000-square-foot mixed-use tower in Harlem. Known as Harlem Park, the project, located on 125th Street and Park Avenue, includes a 200-room Marriott hotel, office spaces, conference rooms, retail spaces, a fitness center, and music clubs. It will be the tallest structure in Harlem and the area's first major tower. The hotel has a particularly sleek, Modern design for a Marriott, and Norten says the company is already using images of the hotel to "modernize" its image.

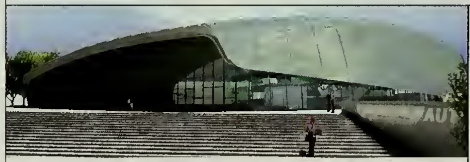
"For me, it's obviously a big mark in New York to be able to build a tower," says Norten. "It designates the development of an area that has been screaming for something to happen there." Norten says he hopes the building will be completed by the end of 2004. *S.L.*

New Museum unveils design for future home



The New Museum of Contemporary Art in New York City has unveiled the design for its future home on the Bowery. The 60,000-square-foot structure is designed by Kazuyo Sejima and Ryue Nishizawa of the firm SANAA in Tokyo.

The seven-story building is made up of a stack of white rectangular boxes shifted off axis in different directions. The boxes are clad in zinc-plated steel and include skylights and windows to provide views of the city. The new building, at 235 Bowery, will double the New Museum's current facilities in SoHo. It will include flexible exhibition space, a media center, a café, and rooftop terraces. The initiative is part of a $35 million capital project that includes erecting the new building, doubling the Museum's endowment, and other growth plans. A small exhibition about the new design opened at the New Museum on November 14, 2003. *S.L.*



Gensler designs Lemay Museum, with "auto" focus

Gensler Architects unveiled the design of a new museum to house the largest private car collection in the world. The 750,000-square-foot Harold E. LeMay Museum in Tacoma will explore America's love affair with the car through a combination of education and entertainment. "The building's curving shape and look of chrome and glass hint at what is inside," says project designer Alan Grant.

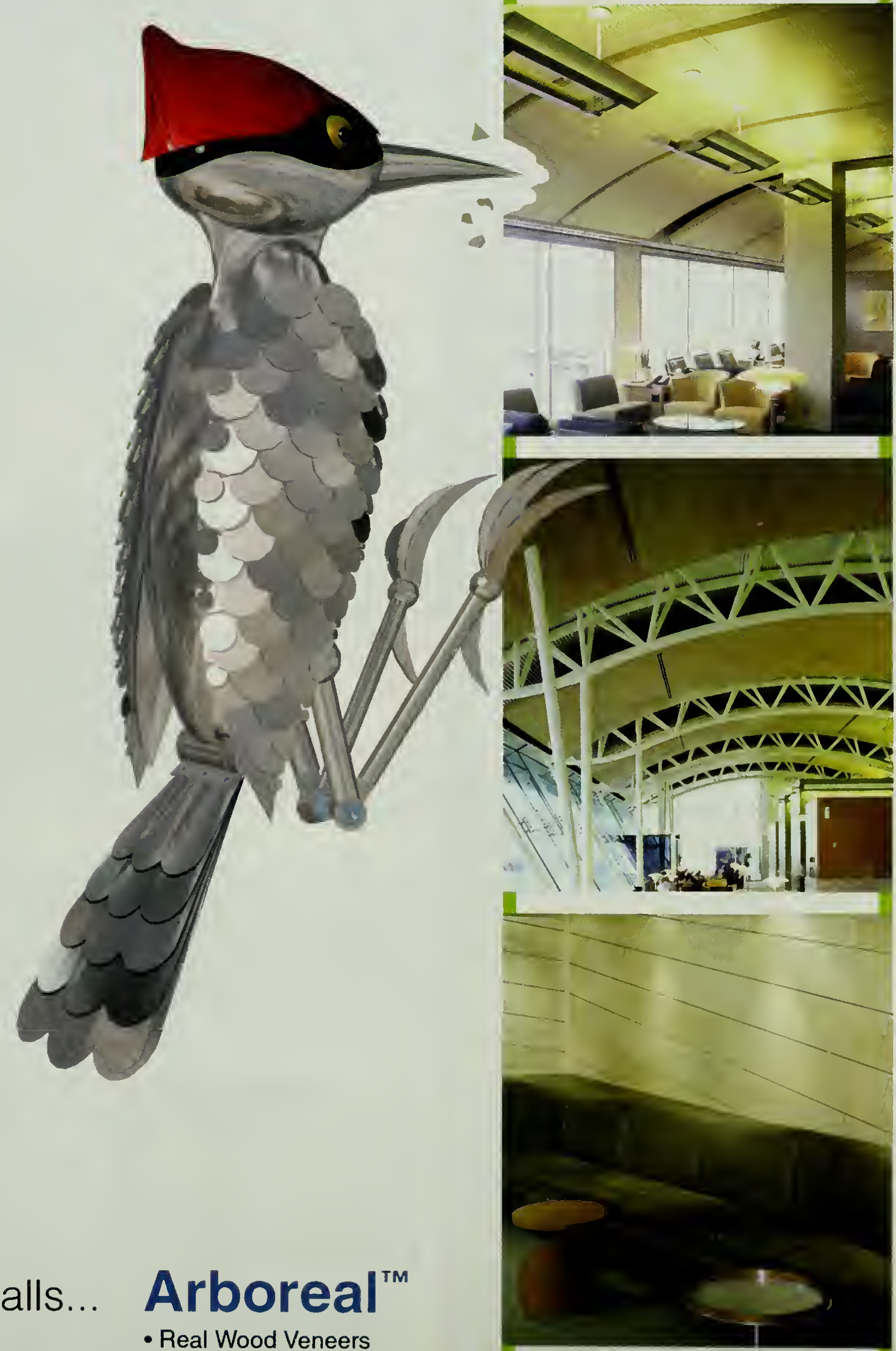
A 90-foot-tall spiral ramp will display 150 of the collection's 3,000 cars, with 50 feet of it above grade and the remainder burying into the museum's underground car vaults. The $100 million museum will be built on a 9-acre site that is part of the City of Tacoma's $10.7 million contribution to the project. Ground breaking is planned for 2005, with the museum to open to the public in 2007. *S.O.*

Williams Tsien help Milwaukee maintain edge

New York firm Tod Williams Billie Tsien Architects is in the midst of design development for a residential project that will be the firm's first multifamily residential building.

Designed as a $20 million, 33,000-square-foot residential condominium development, it is located on the Milwaukee River, with dramatic views of downtown. The building will feature approximately eight condominium units with underground parking, as well as a restaurant and potential office space. Designed as a glass-and-steel structure surrounded by a poured-in-place concrete wall on three sides, the six-story building is an opportunity, according to Williams, to further develop design concepts that the firm has been exploring, such as the juxtaposition of heavy with light, as well as the layering of spaces.

John E. Czarnecki, Assoc. AIA

Real wood ceilings and walls...

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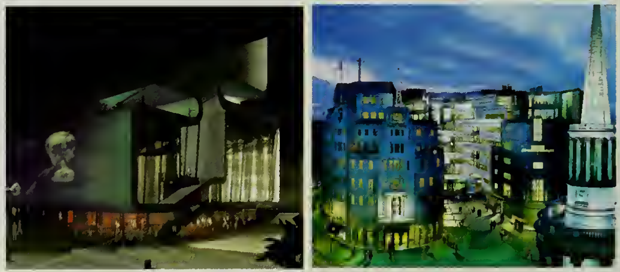
New BBC music center part of ambitious building program

As part of a determined agenda to upgrade its facilities and engage the public through architecture, the British Broadcasting Corporation (BBC) has hired London-based Foreign Office Architects to design a new music center at White City, London. Also competing for the commission were Future Systems, Ushida Findlay Architects, and Zaha Hadid. The new music center, to be called the Music Box, is slated to open in 2006. The 700,000-square-foot, irregularly curving structure will house BBC music ensembles and provide state-of-the-art recording facilities.

The Music Box is part of a wider plan to move all of the BBC's performing groups into new or renovated buildings in the next four years, and to streamline its properties and create clearly defined bases. Over the course of the next decade, the BBC will focus on three major projects in London: Broadcasting House, in the center of the city; White City, in west London; and Television Centre, in Shepherd's Bush, also in west London.

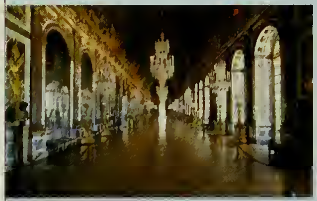
In October 2000, the BBC chose London-based MacCormac Jamieson Pritchard to refurbish Broadcasting House, its flagship headquarters. Expected to be complete in 2008, large areas of the building will be opened to the public, and the building will also include a 43,055-square-foot newsroom, the largest live broadcast center in the world.

The White City development, a 17-acre campus designed by London-based Allies and Morrison, also aims to integrate the BBC into the local community and involves several new buildings, including a new broadcast center, a large office building, and a services building. Lastly, in 2008 the BBC hopes to redevelop its Television Centre, making it more accessible to local residents as well as more attractive. No architect has been chosen for the project. *Diana Lind*


Rendering of the Music Box (left); plans for Broadcasting House (right).

Versaille's Hall of Mirrors to be painstakingly renovated

Nothing at the Château de Versailles was ever done halfway. In the biggest cultural sponsorship project ever undertaken in France, Versailles' famous Hall of Mirrors is being returned to its 17th-century splendor. The restoration, to take five years and an estimated $10 million, is being undertaken pro bono by restoration specialists the VINCI group, in partnership with the French Ministry of Culture. (It is rare in France, a country with few tax incentives for corporate sponsorships, to find such a patron.)



The Hall of Mirrors was built by Jules Hardouin Mansart between 1678 and 1684, and includes, most notably, 357 mirrors. The mirrors, however beautiful, were made using heated mercury to fuse the glass to its tin backing. The steam from the mercury baths is highly toxic, and the process was outlawed. So to replace damaged segments, restorers will have to find similar period mirrors, perhaps saved from other châteaux.

Other elements to be restored include 30 ceiling paintings by Charles Le Brun, wood and stucco wall decorations and moldings, gilded ornament, marble wall panels, statues, and parquet floors. Electrical wiring and fire-safety systems will also be updated, and climatic studies are currently ongoing to find out what is the best air-conditioning system for the continued preservation of the space.

Already a six-month survey has been completed to establish exactly how the room was constructed and how much damage there is, including a computerized topographical survey to provide an accurate 3D plan of the room. (No other reliable plans exist). ***Claire Downey***

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News Briefs

Architect named to develop site of Former D.C. convention center The Washington, D.C., Office of the Deputy Mayor for Planning and Economic Development has selected a team that includes Lord Norman Foster to redevelop the site of the city's former convention center. Located at 900 9th Street NW, the site will become a new neighborhood consisting of housing, shops, parks, and cultural attractions.

Mayor Anthony Williams called the development "a tremendous opportunity to build a dynamic new identity for downtown's East End." Construction is expected to begin in 2005.

In addition to designing Berlin's Reichstag and London's City Hall, Lord Foster is working on master planning projects for Hong Kong and London and mixed-use plans for Liverpool, in England, and Sydney, Australia.

Washington's initial vision for a "town square."

Other members of the team include Hines Interest Limited Partnership, a mixed-use development firm; Archstone-Smith Residential, which specializes in urban apartments; and Georgetown Development Corporation, a developer of commercial and civic real estate. *S.L.*

Cooper Union names Mayne architect of new academic building

The Cooper Union in New York City announced that Thom Mayne of Morphosis will design the school's new academic building. The building, which will rise to nine stories and cover an entire block in Manhattan, will be Mayne's first major project in New York City. Mayne has not produced any designs for the building yet, having been selected on the basis of a Request for Proposal and an in-depth interview process. He was one of four finalists selected from an initial field of 150. Construction is slated to begin in 2006 and end in two years. *Kevin Lerner*

Canada's airports getting major makeover A new generation of international airports designed to capture the individuality of each city is rising across Canada, notably in Toronto, Montreal, and Ottawa.

The new Ottawa Macdonald-Cartier International Airport, more worthy of the Canadian capital than the obsolete 40-year-old terminal it replaced, opened October 12, 2003, six months early and on $232 million budget—and ahead of multibillion dollar expansions of the other two cities' airports.

A joint venture of Brisbin Brook Beynon Architects (BBB), Toronto, and Stantec Architecture, Vancouver, designed the new airport, which is capable of handling 5 million passengers a year.

Floor-to-ceiling windows and skylights allow natural light to flood the 650,000-square-foot terminal building and present unobstructed views of the airport ramps and runways. Ottawa straddles a major canal and river system, which inspired the architects to incorporate a watercourse with simulated rapids, falls, and canals, terminating in a wall-length waterfall cascading into the arrivals hall.

A $3.3 billion expansion of Toronto's Lester B. Pearson International Airport designed by Skidmore, Owings & Merrill and Moshe Safdie Associates will be completed early next year after a 10-year approvals, design, and construction process. The new terminal will replace two old terminals that will then be demolished.

Meanwhile, a new jetty to facilitate clearance of U.S.-bound passengers at Montreal's recently renamed Pierre Elliott Trudeau International Airport opened last April and was followed by an expansion of the terminal, completed in July. A new international arrivals complex is to be completed in 2004; the last of a three-phase, $536 million renewal of the airport. The Montreal-based architectural teams include Provencher Roy Architectes, Pratte et Associés Architectes, Le Groupe Cardinal-Hardy, and Le Groupe ARCOP. *Albert Warson*

Expansion of Toronto's Lester B. Pearson Airport.

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Dates & Events

New & Upcoming Exhibitions

Hopping Fences: Influences in Modern Living
Philadelphia

January 16–May 2, 2004

This project showcases five interdisciplinary design/build firms from the Philadelphia area. The multilayered exhibition is conceived as an alternative to traditional furniture or design shows by acting as a conceptual reflection on how design impacts on and is impacted by modern urban living. Call 215/545-0767 or visit www.philartalliance.org.

The Maine Perspective: Architectural Drawings, 1800–1870
Portland, Maine

February 7–May 22, 2004

The first of a three-part series that will examine the history of Maine architecture, this exhibition encompasses drawings made between 1800 and 1875. The array of 50 drawings on view ranges from the naive graphics of early local amateurs and builders to the sophisticated midcentury projections of trained designers from as far away as Boston, New York, and Washington, D.C. At the Portland Museum of Art. Call 207/775-6148 or visit www.portlandmuseumofart.org.

Technology & Tradition in Japanese Contemporary Architecture
New York City

February 26–28, 2004

Sponsored by Japan Society, ARCHITECTURAL RECORD, and the Architectural League, this symposium features prominent contemporary Japanese and Western architects, architecture critics, curators, scholars, and engineers. Call 212/752-3015, e-mail gsnible@japansociety.org, or go to www.japansociety.org.

Ongoing Exhibitions

Stories of Home: Photographs by Bill Bamberger
Washington, D.C.

December 4, 2003–March 7, 2004

Compelling photographs of low-income, first-time home buyers explores what it means to own a home. *Stories of Home* pairs portraits and visual essays by Lyndhurst Prize–winning photographer Bill Bamberger with excerpts from interviews conducted by families in Chattanooga, Tennessee; San Antonio; and rural eastern North Carolina. The resulting panorama is a unique contribution to the national dialogue about the impact and importance of affordable home ownership. At the National Building Museum. Call 202/270-2448 or visit www.nbm.org.

Welcome to Eastern State Penitentiary
New York City

December 10, 2003–February 6, 2004

Albert Vecerka is an architectural photographer affiliated with ESTO. This exhibition shows large color photographs of a prison that was built with the belief that solitary confinement would bring prisoners penitence and redemption. Visitors can experience the isolation of the prison by entering

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the exhibition through prison doors and stepping into a life-size cell. At the Parsons School of Design, Arnold and Sheila Aronson Galleries. Call 212/229-8987.

Design Collaboration through Imagery
San Francisco
Through January 15, 2004
An exhibition of works by Bay Area architectural illustrators Robert Becker, Robert Frank, Christopher Grubbs, Norman J. Kondy, James Leritz, Yves Pierre Rathle, Michael Reardon, and Art Zendarski. The show demonstrates how these renowned artists and designers collaborate with architects during the design process to achieve successful visual communication of proposed environments. At the AIA SF Gallery. Visit www.aiasf.org.

Rem Koolhaas/OMA/AMO
Berlin
Through January 18, 2004
This exhibition is the largest ever about the Dutch architect Rem Koolhaas, his architectural office OMA, and its think tank, AMO. OMA/Rem Koolhaas has assumed a leading position in the architectural world through its innovative research techniques, thinking, and design. The exhibition is an overview of OMA/AMO's architecture and design projects and presents a selection of its most outstanding innovations. At Neue Nationalegalerie Berlin. Visit www.smb.spk-berlin.de.

Lectures, Conferences, Symposia

Harvard Design School Executive Education Seminars
Boston
January 27–29, 2004
Health-care design events include "Ambulatory Care Facilities: The Planning and Design of Key Health-Care Portals," "Strategic Facility Master Planning: Balancing Competing Health-Care Facility Choices," and "Demand-Based Space Programming for Health-Care Facilities: An Approach and Workshop." Visit www.gsd.harvard.edu/execed.

Manufactured Concrete Products Exposition 2004
Atlanta
February 6–8, 2004
MCPX brings together manufacturers and suppliers in one large trade show where all the latest products and services for the manufactured concrete products industry can be found. At the Georgia World Congress Center. Call 877/627-3976 or visit www.mcpx.org.

AEC Systems: Technology for Design & Construction
Orlando
February 17–19, 2004
Addressing all facets of the architectural design, engineering, and construction industries, this revitalized technology marketplace will showcase a multitrack educational conference, networking events, and exhibitions of cutting-edge trends that drive the diverse sectors of these industries. At the Orange County Convention Center. Call 800/451-1196 or visit www.AECSYSTEMS.com.

Competitions

Ceramic Tiles of Italy Design Competition 2003
Deadline: January 30, 2004
The competition began 10 years ago to recognize outstanding achievement by North American architects or interior designers using Italian ceramic tile in commercial, institutional, or residential installations. Projects are judged on their creative

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attributes as well as how they meet their functional and technical requirements. For information, visit www.italiatiles.com or wwwitalytile.com.

Snapshot 04: Current Houston Design on View
Houston
Deadline: January 30, 2004
The Rice Design Alliance invites Houston design professionals to participate in this open-call exhibition, which will run at Lawndale Art Center April 9–May 1, 2004. Call 713/348-4876 or visit www.rda.rice.edu.

The 2004 Internship Development Program Outstanding Firm Awards
Washington, D.C.
Deadline: January 30, 2004
This award recognizes outstanding programs in support of interns, including training opportunities, mentoring, continuing educational programs, and evident commitment to the Intern Development Program. Call 202/626-7456 or visit www.aia.org.

International Solutia Design Awards
Deadline: February 1, 2004
Architects and designers from around the world are invited to participate in the sixth annual design awards. The competition will recognize projects that demonstrate innovative use of any of Solutia's architectural glazing products. Call 877/674-1233 or visit www.Solutia.com.

2004 Northeast Green Building Awards
Deadline: February 3, 2004
The annual competition is open to built works, either new construction or renovations, completed after January 1, 1998, and before January 1, 2004, in the northeastern U.S., as well as to student projects. Award categories include places to live, work, and learn. Call 413/774-6051 or visit www.nesea.org.

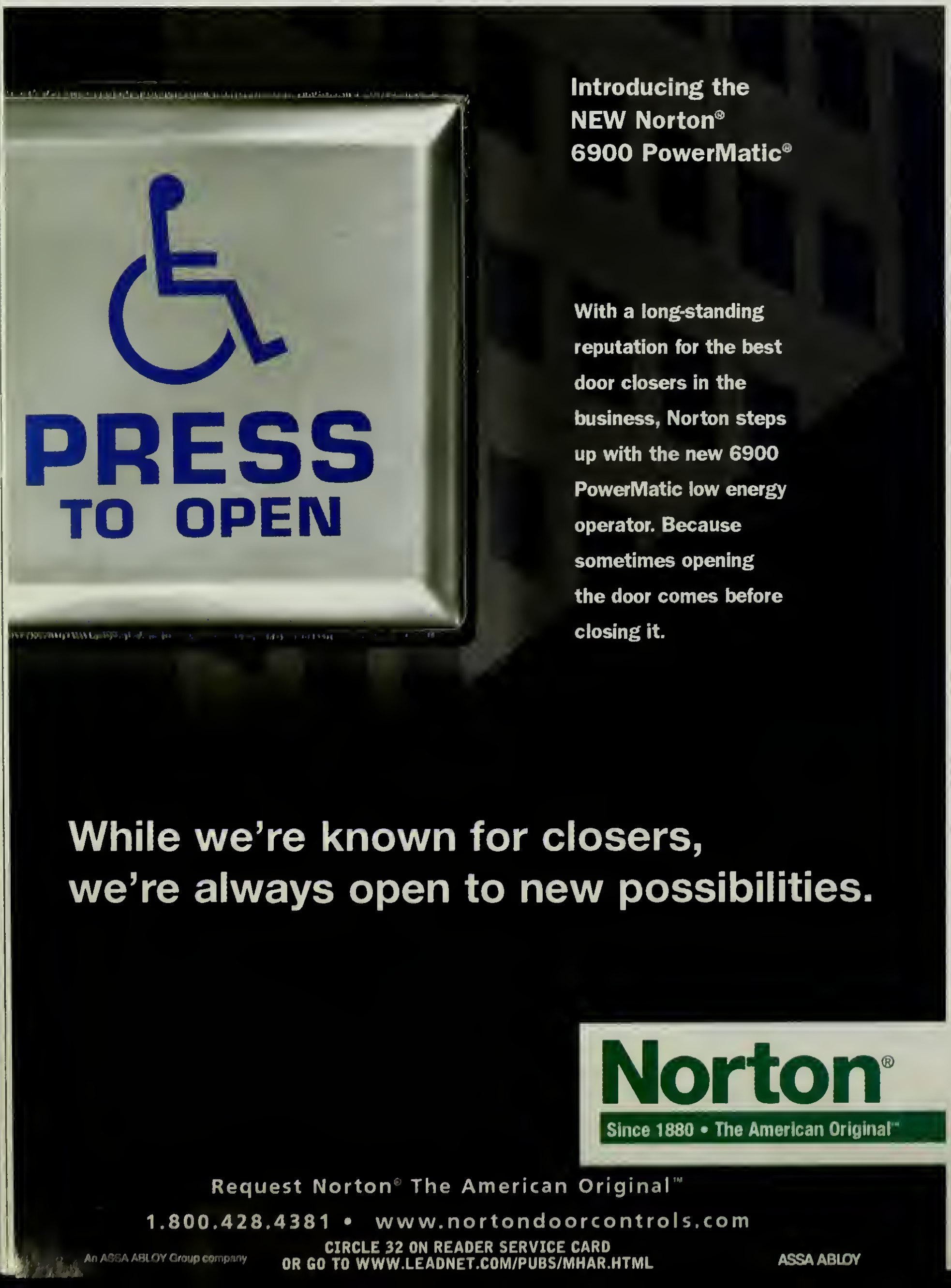
2003–2004 Young Architects Forum
Deadline: February 13, 2004
The competition is open to architects and designers 10 years or less out of undergraduate or graduate school. Winners receive a $1,000 cash prize, and their work will be exhibited and published in an annual catalog. Call 212/753-1722 or visit www.archleague.org.

Broadway Square Design Competition
Fargo, North Dakota
Deadline: March 15, 2004
The purpose of this competition is the development of a design for Broadway Square that will enhance the space and be compatible with the Broadway streetscape and surrounding features. Call 701/241-1474 or visit www.cityoffargo.com/broadwaysquare.

2004 Business Week/Architectural Record Awards Program
Deadline to order submission package: March 19, 2004
Deadline: April 16, 2004
These awards honor architectural solutions that help clients achieve business goals through measurable results and distinguished collaboration between architect and client. For more information, call 202/626-7524, or e-mail bwarawards@aia.org.

2004 International Achievements Awards Competition
Deadline: July 15, 2004
Specialty fabrics industry professionals are encouraged to enter projects for this competition, which is designed to recognize outstanding projects in the specialty fabrics industry. Call 651/225-6926 or visit www.ifai.com.

E-mail events and competitions to ingrid_whitehead@mcgraw-hill.com.



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archrecord2

FOR THE EMERGING ARCHITECT

When you can do it all yourself, collaboration is key. Is that a contradiction in terms? This month's **archrecord2 Design** architect, Todd Farrage, doesn't think so. As architect, metalworker, furniture maker, and sculptor, Farrage teams up when he knows two or more heads will help him concentrate on his strengths for a project. Our **Work** architects also know the value of sharing. Essex Street Studios has become a mission control center for several thriving N.Y.C. architects.

DESIGN

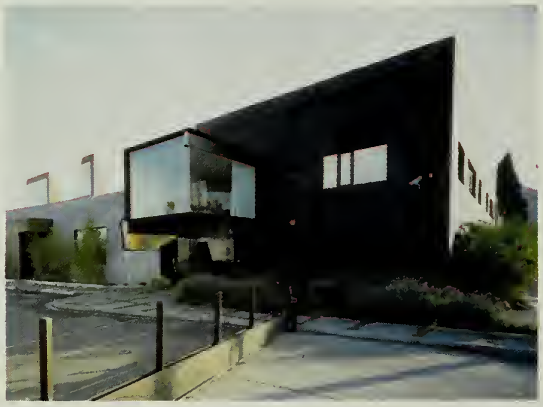
Todd Farrage: the whole package

Design and construction almost always involve a collaborative effort. California native Tom Farrage understands this well. Since receiving his architecture degree from SCI-Arc in 1986, his career has involved creative collaborations with everyone from hometown acquaintances and former classmates to world-renowned architects and a legendary photographer.

"At SCI-Arc, I got a reputation for being tool-happy," admits Farrage, who, upon graduating, opened his own metalworking shop adjacent to the campus where he designed and fabricated jewelry, lighting, furniture, and sculptural objects. His work caught the attention of passersby, among them Thom Mayne and Eric Owen Moss, who both began to involve Farrage on a number of built projects and exhibitions that required custom metalwork of extraordinary detail. "I get excited when I come up with new details," explains Farrage. "My work is an ongoing investigation, and the forms I create are a result of the tools that make them."

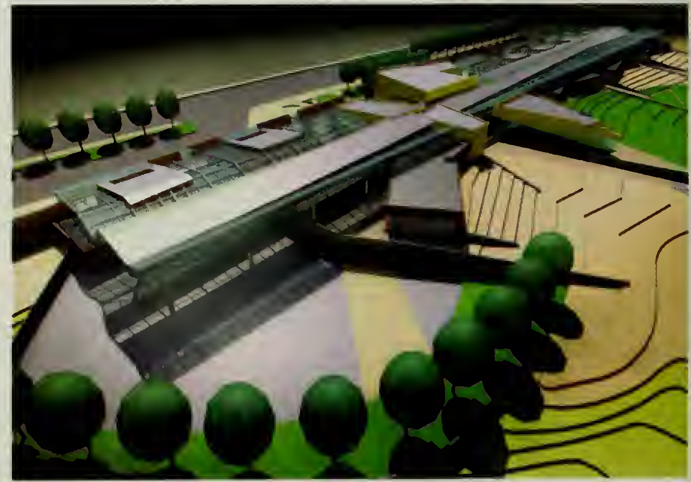
Farrage's recent projects designing interiors, renovations, and new construction have taken this investigation a step further and involved him in a new series of collaborations. As one half of Nakao::Farrage Architects, Farrage began experimenting with what he refers to as a "screen-to-site" design-build method. Together, he and fellow SCI-Arc alum Scott Nakao employed a hands-on approach to create environments that blend structure and furniture into unexpected geometries and bold forms.

In its projects for the headquarters of two different media companies, Nakao::Farrage transformed a former dance studio and a manufacturing warehouse into professional offices with an edge. The first of these, for Circa 2k, a company that produces commercials and documentaries, allowed complete freedom in terms of design but required even more ingenuity when it came to building. With a budget of only $30,000, Farrage himself was responsible for most of the fabrication and construction. "We'd take the renderings to the site and often build the same day without need of working drawings," Farrage explains.



HSI Productions, Culver City, Calif., 2001

HSI, one of the world's top producers of commercials and music videos, hired Nakao::Farrage to design its West Coast production offices. Skewed geometries and a cantilevered roof, along with Farrage's expert metalwork, give the building a quirky edge.



Felix J. Appleby Elementary School, Blythe, Calif., 2005

Designed by Rachlin-Farrage Architects, this 50,000-square-foot K-12 school, in the agricultural community of Blythe, is a labor of love for Farrage—he was a student there. The school's linear design was dubbed "The Learning Street."

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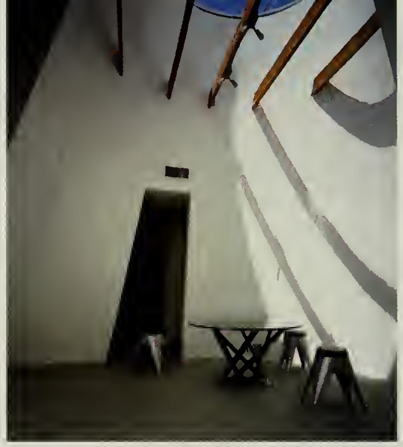
That project led to one almost 10 times bigger, with a budget to match. Nakao::Farrage's design for HSI's West Coast offices combines angled walls with skylights of varied shapes and sizes set amid a vaulted ceiling with wooden trusses. Another dramatic feature is the glass conference room which cantilevers out 18 feet over the entrance.

Farrage has most recently teamed up with architect Michael Rachlin and is currently at work on a very personal project—the design of the new Appleby Elementary School in his hometown. "I've been lucky to have worked with people like Thom and Eric who've allowed me to play the craftsman role," admits Farrage, "and with Scott and Michael, where I can play the architect role."

This jumping back and forth has proved advantageous on occasion. While work was nearing completion on the HSI offices, photographer Julius Shulman asked Farrage to fabricate and install new handrails in his home. "I've worked with Julius before, and it's always involved some bartering," explains Farrage. "That time, he agreed to photograph HSI—and we ended up with some beautiful images." ***Josephine Minutillo***

Go to architecturalrecord.com/archrecord2 for more on Todd Farrage, and to submit your own projects.

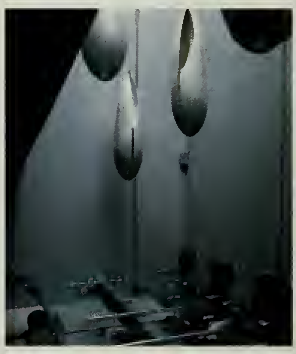


Smashbox Studios, Culver City, Calif., 1997

Dean Factor hired Nakao::Farrage Architects to design and manufacture all furniture, finishes, and details for this studio building.

SHR Perceptual Management, Scottsdale, Ariz., 1999

Designed by Morphosis, fabricated by Farrage. Farrage was asked to make "everything hang from the ceiling," even the table (below). The pods are sculpted fiberglass, brushed with aluminum powder.



WORK

Share and share I like: Essex Street Studios

In most cities, including New York, it's not unusual to have diverse design professionals sharing the same studio space. Record Vanguard architects from 2000 Lewis.Tsurumaki.Lewis (LTL) were doing just that in a building in downtown Manhattan until the need arose to find their own space.

"We had been subletting some cubicle space on a floor with some other firms, many of them actually friends of ours," explains Paul Lewis. "But we never saw each other. It's the nature of the cubicle that you don't just walk in and interrupt someone while they're working, so passing conversation didn't happen."

LTL first came upon its current offices on Manhattan's Lower East Side when the team needed a space to store their tools. "We had been kicked out of our shop, and knew this building had a shop in the basement," David Lewis says. A few months later, the space above, a 2,000-square-foot former vintage-clothing store, became available.

After four frantic weeks of building, Essex Street Studios opened in January 2001. The storefront space features a large conference area as you walk in, with two continuous rows of desks lining the walls, and a mezzanine above. According to David, "We decided that rather than profiting or cutting our own rent, we would divide the rent evenly by the number of desks." The space features a total of 27 desks. Each tenant pays for the desk they occupy and shares overhead expenses, including plotters, copiers, fax machines, and cleaning services, as well as the library.

Finding tenants came easily—mostly by word of mouth, and mostly young architects just out of school or just starting their own practice, but all doing interesting work. Several of the tenants have won the Young Architects Award from the Architectural League of New York.

"We approached LTL to rent some space here," says Makram El-Kadi of L.E.FT Architecture, who was working on a project with LTL when the studio was opening. Eric Bunge of nARCHITECTS, another original tenant, concurs, "It's fantastic to be able to share not only physical resources, but also the talents of everyone around. Many of us also teach, so we rely on each other when it comes time for studio reviews."

Ten small firms, mostly 3–7 people in size—including BriggsKnowles Architecture + Design, Normal Group for Architecture, and several individual architects and graphic designers—currently occupy the studios, though the number frequently fluctuates as temporary tenants sometimes rent for short periods at a time. "Another advantage of sharing this space, besides it being just more social," Paul says, "is a certain degree of job security. It's happened that as one firm's workload slows down, another firm in need of an extra person would hire from within. It's a beneficial situation across the board." *Josephine Minutillo*

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What Every Architect Should Know About Copyright Law

Practice Matters

By Richard M. McDermott and Jason M. Sneed

As digital cameras, copy machines, and cheap scanners have proliferated, it has become harder than ever for architects to prevent unauthorized copying of their work. And the ease with which material can be downloaded from the Internet seems to have made people more disrespectful than ever of laws intended to protect intellectual property. It is imperative that architects know what their rights and legal remedies are should they discover that people are using their work without permission.

Copyright law basics

Here's a review of the basics. Certain rights are granted to anyone who creates an original work of authorship and fixes it in a tangible medium of expression, like a drawing, photograph, CAD file, Web page, or even an actual building. The first of these rights is the exclusive right to reproduce the work. The second is the right to use the work to prepare similar works, also called "derivative works." The third is the right to distribute copies of the work to the public—by sale, license, rental, lease, or assignment. Only the creators of an architectural plan or elevation, for example, or those employed by them, have the right to make copies of the work or to make other plans based on the original.

No one else can sell or license the right to build anything based on the floor plan or design, or build the structure itself without the creators' permission. Copyright rights can cover other things, such as the performance of a musical composition, but these seldom apply to architects or architecture.

It is also worthwhile to point out that copyrights are not patents. Patents can protect inventions, a new machine or manufacturing processes, the visual ornamental characteristics of an article of manufacture, even genetically engineered plants. A copyright can protect your buildings from being copied, but it can't keep someone from copying concepts or ideas.

One common misunderstanding is that original works of authorship are not protected until they are registered with the U.S. Copyright Office. Actually, all kinds of works—a building, a song, a novel—are protected as soon as they are fixed in a tangible medium of expression. But no legal action can be brought against an infringer until copyright registration has been obtained. Because getting a copyright normally takes four to six months, it is prudent to register your design work as soon as it is created, rather than waiting until there is an urgent need to enforce your rights.

Early copyright registration also enhances the copyright owner's remedies in the event that the work is infringed upon. If the creator of a work sought registration within three months of the work's creation, regardless of whether an infringement took place before registration, he may collect statutory damages. This is important, because often an infringer will claim that because a project built from copied drawings was not profitable, the copyright owner did not suffer a loss. But copyright owners who are entitled to statutory damages do not have to prove they suffered a loss in order to collect money from an infringer. Because the U.S. Copyright Office is a federal agency, all copyright cases are tried in federal court. Statutory damages are discretionary and are set by the judge trying the case. They can be as much as $30,000 per infringement, or up to $150,000 for each instance of willful infringement, which occurs when the infringer knew the work that he copied was copyrighted. Attorneys' fees may also be recoverable in some cases.

Another misperception is that one cannot copyright a building. In fact, you can. Since Congress passed the Architectural Works Copyright Protection Act in 1990, buildings themselves can be registered. Prior to 1990, anyone could reproduce buildings that looked identical to those created by others, as long as they did not use copied drawings to build them. Now, copyright owners can register completed buildings as well as drawings. According to the act, the "work includes the overall form as well as the arrangement and composition of spaces and elements in the design, but does not include individual standard features" such as doors and windows. A building design doesn't have to be innovative to receive protection—in fact, the bar is very low as to what constitutes something worthy of being copyrighted—as long as the creation is original to the copyright registrant.

How to register your work

You can learn how to register your work, as well as many other things that apply to protecting architectural works, by getting U.S. Copyright Office Circular 41, found online at www.copyright.gov/circs/circ41.html. Architectural works are registered as works of visual art using Form VA. This is also available online from www.copyright.gov/forms/formvai.pdf.

The basic application fee is $30, but it costs more if the applicant wants to expedite registration. Since the copyright act now distinguishes between architectural plans and completed architectural works, the architect or builder should register plans of unbuilt work as well as structures created from their drawings that have been completed. When a finished structure is being registered, the drawings can be supported with interior and exterior photographs.

A copyright notice should be made in the following form: with the copyright symbol or the word *copyright*, the year of first publication of the work, and the name of the copyright owner or a name by which the owner can be recognized; for example, "© 2003 Smith & Jones Architects, Inc." The notice must be located in a conspicuous place on the documents. Effective use of copyright notices can limit the defenses that an "innocent infringer" is able to use to refute a claim of infringement or to minimize dam-

Richard M. McDermott and Jason M. Sneed are attorneys with the firm Alston & Bird, in its Charlotte, North Carolina, office.

ages. The notice also tells a person who might want to use the work whom to contact to get a license.

An important difference between copyright and trademark law is that a trademark owner, such as the Coca-Cola Bottling Company, must vigorously protect the public's association with their trademark, *Coke*; otherwise, their rights to protection will be lost. A copyright owner is not required to send warning letters to, or worse, sue every infringer in order to retain their rights. A copyright owner might skip suing a contractor who copied a design once because the chances of recovery are small, but may later sue a large contractor who had copied it hundreds of times and against whom the chances of making a recovery are greater.

Who owns the copyright?

Some clients assume that because they paid an architect to design a structure, that they "own" the building's design. This not true unless the architect and client agree on this point up front. Your contract with a client should specify, first, that the architect is an independent contractor and not the client's employee. Second, unless you are selling the rights, the contract should reiterate that the architect owns all the copyrights for works created pursuant to the contract.

Third, it is advisable that the contract state that only when the works are completed, sealed, and the architect has been paid for all services complete to date, will the right to build a specified number of structures based on the plans or drawings be granted to the client. Clients who wish to build more than one structure based on a set of drawings can negotiate with the architect to build a set number of buildings or to buy the copyright altogether.

It is not uncommon for a client to hire an architect to design a building but then stop the work before it is complete. If the client later hires a builder to complete a structure from the preliminary drawings, the architect may be able to recover damages from the builder for infringement, and damages for breach of contract from the client, as well as contributory infringement. Contributory infringement means that the client induced the builder to commit the infringement. As part of those damages, the architect may be able to recover the revenues he or she would have received had the project gone to completion, plus attorneys' fees and costs.

THE KEY INQUIRY IN A COPYRIGHT INFRINGEMENT ACTION IS, SIMPLY PUT, WHETHER THE DEFENDANT COPIED.

Confusion about copyright ownership may also arise occasionally between architects and their employees. All employment agreements, whether made with permanent employees or temps, should clearly state that employees' work products are "works made for hire." This means that the employer owns the copyright rights to any work prepared by an employee within the scope of his or her employment. Information about work for hire laws is available in U.S. Copyright Office Circular 9, at www.copyright.gov/circs/circ9.html.

See you in court

The key inquiry in a copyright infringement action is, simply put, whether the defendant copied. Copying can be claimed in one of two ways: by showing direct copying, where there is evidence that the defendant made actual copies of the drawings; or by showing indirect copying, where, for example, a defendant could have measured a structure and redrawn it. Two ele-

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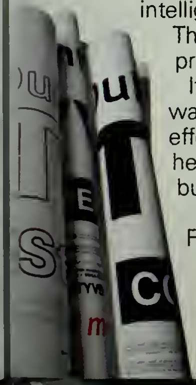

ments are required to prove a work was copied. The first is that the accused infringer had access to it, and the second is that the copyrighted work and the allegedly copied work are "substantially similar."

This situation is not as straightforward as it sounds. If Architect Smith copyrighted a building design and a few weeks later Architect Jones independently created the same building design, Jones did not infringe. If a dispute between them arises, Smith has to prove that Jones had access to the Smith design and copied it. To defend himself, Jones must prove he created the work "independently," without access to the prior work. Whether the compared works are substantially similar is determined based on the perspective of an ordinary observer, not the perspective of one skilled in architecture. To further confuse matters, copyrights might have been granted to both architects for their similar designs. The copyright office does not check to see whether a design is truly one of a kind when deciding to grant a copyright. It only gives an item a cursory review to determine whether it meets the threshold of originality necessary to make it copyrightable.

If infringement can be proved, sometimes an out-of-court settlement between the parties can be negotiated. In addition to the amount of the settlement, those on opposite sides of the dispute have to agree on two things. First, they must decide what is to become of the allegedly infringing works. Often, infringing works, like drawings, are destroyed. In the case of a building, it is probably more practical for the parties to negotiate a settlement than to bulldoze. The second thing they must agree upon is whether the terms of the settlement should be kept confidential. The terms of most commercial litigation settlements are sealed, but it may be in the copyright owner's interest not to do so. If the terms are known, the information could be used to set a value for other settlements, and the size of the award may deter people from being tempted to infringe in the future.

Practical considerations

While a copyright mark may discourage some infringers, in the end there is little point in registering your buildings unless you are willing to take legal action against offenders, and it can be a good thing to have a reputation as one who is willing to take infringers to court. But before instigating a lawsuit, you need to be realistic about whether you can win your case. If you cannot prove that the infringer had access to the copyrighted work, and that the derived work is substantially similar to your own, it will be hard to win. Next you must consider cost. The fees for getting a simple copyright infringement case to trial can be in excess of $100,000. And because the copyright act permits the prevailing party to recover his or her attorneys' fees, a plaintiff who brings a weak case to court may wind up paying the defendant's legal bills.

If your intention is to use the aggressive prosecution of copyright infringements to create an income stream, discuss the feasibility of this goal with an attorney. The federal courts are busy, and getting a case to trial can take 18 to 24 months. Even before that, the amount of time it takes to prepare counsel for trial, make depositions, locate evidence, and participate in a trial may be far more than most people realize.

Sadly, architects who publish their works on the Internet are particularly vulnerable to infringers. A person who once had to go to some trouble to copy a professional's work can now do it in seconds. If you don't want your work to be copied, it is probably best not to put in on the Internet. If your work is posted without your permission, you should consult an attorney who can help you consider your options. ■

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Of landmarks and memorials: Getting mad (and MAD) about all the wrong things

Critique

By Michael Sorkin

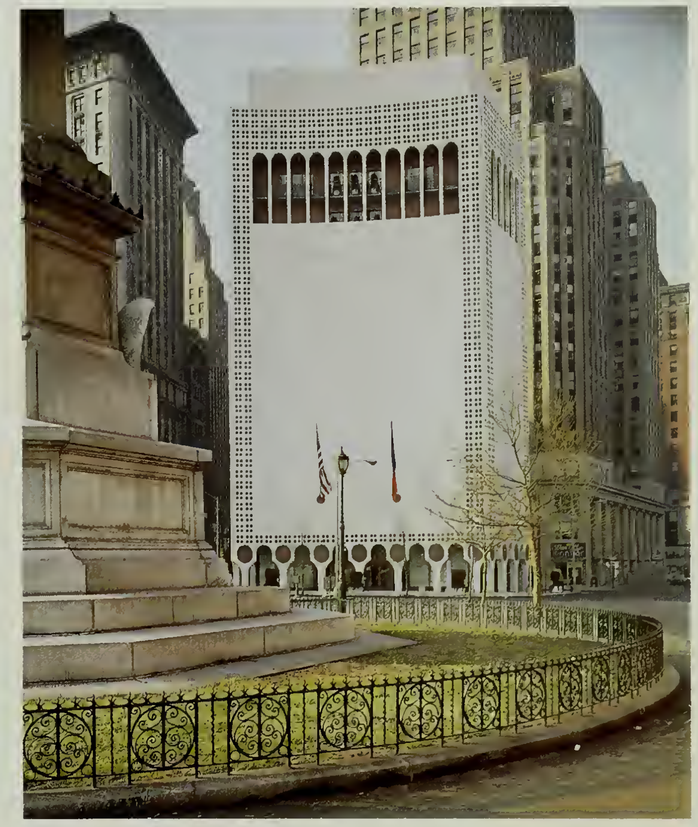
In 1989, after a protracted struggle, the federal government removed Richard Serra's *Tilted Arc* from the plaza in front of the Jacob K. Javits Federal Building in Lower Manhattan. The brief against the sculpture had been its alleged disruption of the public space in which it sat. Although I had no particular love for *Tilted Arc*, I argued at the time that the rage against it was in large measure a displacement of anger that should have been directed at the awful architecture that formed its backdrop—serenely ugly, and in its hugeness, Minimalist to the point of idiocy.

Two similar cases of displacement are being enacted in Manhattan today—one at the southwest corner of Central Park and the other all the way downtown. The first centers on Columbus Circle, where an ongoing controversy rages over plans by the Museum of Arts & Design (MAD), formerly the American Craft Museum, to reskin its new home in the former Huntington Hartford Gallery of Modern Art, designed with confectionary panache by Edward Durell Stone in 1964. This odd building has become a cause célèbre for preservationists, who argue for its historic and formal consequence. I have always held this quirky, bright little folly in affection, and strongly agree it should be saved. Articulating the argument is problematic, however.

Although I love the building, defending it on the narrow grounds of its aesthetic importance requires a grain of salt: This is not a "great" work in the sense that the Guggenheim is or Penn Station was. Defending this building requires a somewhat more expansive—if equally compelling—interpretation of the idea of preservation. It should be saved because many hold it in deep affection for various private reasons, because it is a very good building, and—perhaps especially—because it contributes so strongly to defining its site. The gleaming white marble punctuation visible down Broadway, the polka-dot frou-frou of its corner apertures, the legendary lollipop columns at its base, all vitalize Columbus Circle indelibly, represent the place in mind and memory.

Neutron-bomb approach

This is a gray area in landmarking, one which must recognize that artistic and historic arguments engage only a limited range of meanings. Where, in this construct, do we fit singularity, familiarity, identity, difference? Landmarking is a form of consent, a compact about what is collectively valued in the city. In its focus on the physical and the artistic, landmarking always risks the neutron-bomb approach, preserving the object but killing the cultural setting in which it acquires its meaning. A more expansive view of landmarking is like rent control, a subsidy (or a "taking," as lawyers say) that would enable neighborhoods to continue the process of diversifying. This approach, though, would require a different style of consensus, one that goes beyond form to embrace lived life.



Edward Durell Stone's building at Columbus Circle is still causing controversy.

The importance of 2 Columbus Circle exceeds the categories through which its future is being argued: We simply do not have a legal basis for saving nice old friends. As with *Tilted Arc*, however, the displacement at Columbus Circle comes in the poignant absurdity of the intensity of the debate when far larger battles have already been lost and when issues so crucial to the future of the place are on nobody's agenda. It becomes even more imperative to save this building because of the monstrosities that surround it and loom over it, including the just-completed Time Warner Center, which sets new lows in original design moves per unit volume.

The result of a developer competition in which the Metropolitan Transit Authority auctioned off the site to the highest bidder, the Time Warner Center is far too large, a

Contributing editor Michael Sorkin is an architect and heads the urban planning program at City College of New York.

problem dramatically exacerbated by the scalelessness of its smooth, unperforated, black skin. Looming over Central Park and holding down a crucial corner of its architectural envelope, the building is whimsically dark, in contrast to the generally pale color of the structures around the park. From a million angles it appears to be a rude lump on the cityscape, faceless after the manner of the corporation that rents it and the corporation that designed it.

Ignoring what's below

The major experience of Columbus Circle for most people, however, is in their encounter with the subway station beneath it, the busiest in the system and one of the most unspeakably filthy and labyrinthine, totally degrading to travelers. And here is the main displacement: The complete failure to deal meaningfully with the most profound urban question on the site. Patting themselves on the back for the building's curved base, twin towers, and door at the end of 59th Street, the project's boosters tout its civic presence and formulaic "urbanity." And a good time will doubtless be had by the media executives and hyper-rich who sport in its boardrooms, condos, and upmarket hotel and restaurants. Meanwhile, like the slaves in Fritz Lang's *Metropolis*, the masses will continue to sweat and toil below in a zone visited by no nicety whatsoever and with no meaningful influence on the architecture above. This is the income gap literalized in steel and glass. And this is the context in which the haste to destroy the last winning and familiar thing on the circle becomes especially ludicrous, as the place is sucked dry by the vacancy of the cultural forces behind it.

THE COMPETITORS FOR THE WTC MEMORIAL HAVE DONE NOBLY TO STRUGGLE THROUGH A PIOUS FOG OF CONSTRAINT.

But the most grotesque displacement in town has been recently revealed in the results of the competition for a memorial at Ground Zero. This is surely the most managed displacement ever, a virtual Ponzi scheme, revealing—like Columbus Circle—a set of priorities that are realized precisely backwards. From the start, the Lower Manhattan Development Corporation (LMDC) has made craven use of architecture—a classic instance of what magicians call misdirection. We are distracted by the ridiculous travails of David Childs and Danny Libeskind trying to agree on the shape of the world's tallest office building in order to avoid the question of precisely why the world's tallest office building (as well as its shrimpier kith) must be built on this hallowed ground.

And now we are vilely distracted by the act of hallowing. The finalists in the memorial competition have been almost universally criticized for the generic character of their submissions and the abstracted quality of their iconography. Again, the heat is being misdirected away from a problem that—at the gargantuan scale of real estate development—is simply glanced over. Look at what has been decided for the memorial designers in advance: adjacent 1,776 foot-high office building, abstracted representation of Lady Liberty's arm, wedge of light, lines of access, site below grade (but not to bedrock!), glazed slurry wall, giant waterfall. The competitors have done nobly to struggle through this pious fog of representation and constraint with any form of integrity, knowing that whatever they proposed will have chamfered buildings flying over it and will sit in a hole at the foot of the humongous building that will—in its preening supersize and banal iconography—usurp memorial duties in the service of the egotistic ambitions of our governor, the lease-holder, the LMDC, and the architects.

The interiors of Huntington Hartford's Gallery of Modern Art at 2 Columbus Circle (above and below) were destroyed when they were turned into offices.

Eloquence of the void

I say, let us keep one of the eight memorial finalists—how shameful the cries to set aside the competition process when we finally have an open one!—and forget about the clutch of needless buildings that will engorge the coffers of Larry Silverstein, the Port Authority, and the architects. The astonishing eloquence of the void—which has the potential to become a matchless urban space—will never be equalled by slick styling and enormity. It is our last chance to save this place for everyone, to create a site for conversation and contemplation, a terrain for additional memorials and expressions from the diversity of voices—so movingly expressed in the aftermath of the tragedy—but now subsumed in the uniformity of form and intent that threatens to destroy this place once more. ■

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Gehry's Disney Hall: Does it deserve the hosannas?

Commentary

By John Pastier

Frank Gehry's Walt Disney Concert Hall has been the most anticipated building of our time. Even before a paying customer heard a note, it commanded more ink and bandwidth than many worthy buildings had over their entire existence. Metaphors flowed like Amazonian waters as writers vied to mirror the design's inventiveness. Now open, does it deserve the hosannas?

Absolutely. The realized building surpasses anything promised by decades of models and drawings. Often seen as a reprise of Gehry's Bilbao Guggenheim Museum, it's actually the source of Bilbao's form and style. Disney Hall was first conceived in 1987 [RECORD, November 2003, page 134], and launched the billowing, swirling forms that have marked at least 15 Gehry designs since. It led the way from his skewed Cubistic expressionism, crystallized in his own house remodeling of 1978, to his current lyrical and baroque visual vocabulary.

Disney as L.A. savior

Local boosters hope Disney Hall can revitalize its city as the Guggenheim did in Bilbao. This is naive. Bilbao is far smaller, and the museum is its one major visitor draw. Nor is a visual comparison fruitful. The Guggenheim is blessed with a splendid riverfront site within a coherent urban fabric nestled amid green hills. Disney labors to transcend what is still largely an automobile-scaled urban vacuum.

It fronts on Grand Avenue, which has emerged as downtown's major civic and cultural artery but still feels like a highway and an unfinished urban-renewal artifact. The small Museum of Contemporary Art, by Arata Isozaki, Rafael Moneo's Cathedral of Our Lady of the Angels [RECORD, November 2002, page 124], and a music school by Hardy Holzman Pfeiffer lend architectural interest, but banality is more prevalent in the form of parking lots and garages; Welton Becket's uninspired Music Center, a three-stage performing arts complex housing the Chandler Pavilion (where the orchestra used to play); and two large Mussolini-Modern county buildings flanking an underused pedestrian mall.

Two blocks of Grand will soon be rebuilt with a curving roadway, wider sidewalks, street trees, and fewer traffic lanes, but even now Gehry's opus gives it newfound grace and presence. Remarkably, its billowing stainless-steel exterior manages to be at once playful and monumental. It responds to light and weather, becoming as solid as a mountain range, as golden or rosy as a sunset, or as cool and delicate as fog. The oily handprints that already cover its surface are a popular tribute to its tactile attraction.

It turns its best face to Grand, where a glass lower lobby opens wide, free to the public for extended hours, even when no events are scheduled. Next to it are a gift shop and Patina, a high-end restaurant designed by Hagy Belzberg [RECORD, December 2003, page 100].

A broad entrance stair ascends from the corner of First and Grand, but Disney's other three sides abut spottily developed, sloping urban highways rather than humanely built city streets. Gehry's response was to make a low plinth on First, and front the other two streets with flat rectangular structures clad in warm limestone. These house administrative and musicians' quarters and the Roy and Edna Disney/Cal Arts Theater, an intimate café and superbly equipped black-box performance space.

Taking bows at Disney's opening are (below, from left) Esa-Pekka Salonen, Yasuhisa Toyota, and Frank Gehry. First-night fireworks lit up the sky (above).

A secluded 1-acre public garden wrapped around two sides of the metal superstructure, 34 feet above Grand, provides the pedestrian amenity absent elsewhere. Two amphitheaters offer public-programming possibilities within an understated landscape design by Melinda Taylor. This features mature trees transplanted from donors' gardens, and a peculiar broken-crockery fountain designed by Gehry to honor donor Lillian Disney. The fountain recalls the iconoclastic, Gaudíesque folk artist Simon Rodia, of Watts Towers fame.

Piranesian lobby; serene auditorium

The crisp orthogonality of the hand-

John Pastier, a Seattle-based design writer and consultant, was the Los Angeles Times' *founding architecture critic.*

some red-walled entrance from the underground garage is the one exception to the hall's omnipresent curved forms. Above, Gehry created an intricate set of circulation spaces rather than an easily comprehended grand lobby. A sensuously rounded space off the upper entrance, meant for preconcert talks and chamber-music presentations, is hampered by its openness to the noise of the lobby. Massive, abstracted tree forms—disguising columns, ventilation, and lighting—make the fragmented lobbies feel cramped. Skylit asymmetrical upper lobbies access the symmetrical seating tiers. The overall effect is Piranesian and a bit confusing to first-time patrons.

This spatial complexity gives way to an Apollonian lucidity in the auditorium. The room layout has clarity despite its complex geometry, and a sense of lightness, augmented when concealed skylights softly diffuse daylight. Gehry calls it "my I.M. Pei space." The monumental angularity that marks Pei's work is absent, but Gehry's detailing and finishes are as elegant and meticulous as Pei's. Finished primarily in warm Douglas fir, the auditorium's curved forms also subtly evoke Alvar Aalto's interiors and Charles Eames's molded-wood furniture designs. This surface treatment is not just aesthetic; its convexity is essential to the hall's acoustic success.

Acoustically, a high-wire act

Although highly personal, the hall's design reflects a genuinely collegial collaboration between Gehry and acoustician Yasuhisu Toyota, of Nagata Acoustics. These marriages don't always go well. Many acousticians are imperious, and struggles between them and designers have been legendary.

Sound seems to enter a listener's body not through just the ears but through the eyes, every pore in the skin ...

—Mark Swed, *Los Angeles Times*

The overall effect was full-bodied and clear but in a modern, somewhat clinical way.

—Anthony Tommasini, *The New York Times*

Shop fronts are dingy, buildings grimy, beggars huddle on refuse-strewn pavements.... Yet turn back and there it is, a silver hallucination between the high-rises.

—Shirley Apthorp, *The Financial Times*

When all the instruments sounded at full volume, you experienced a composition out of Orson Welles: The big picture was clear, yet every detail was distinct.

—Alex Ross, *The New Yorker*

Pumpkin into carriage, cabbage into concert hall, bippidi-bobbidi-boo.

—Herbert Muschamp, *The New York Times*

In Gehry's work you see echoes of ... Gaudí, Scharoun, and Saarinen; in Salonen you hear Sibelius, Ravel, and Boulez.

—Pierre Ruhe, *The Atlanta Journal Constitution*

The orchestra prizes clarity and crackle, hammer-stroke accents and crystalline counterpoint, and the hall obliged, with a sound that was limpid, vivid, and electric.

—Justin Davidson, *Newsday*

[Through structures like Disney] we identify with the beautiful and the exceptional; we understand ourselves and our aspirations.

—Ada Louise Huxtable, *The Wall Street Journal*

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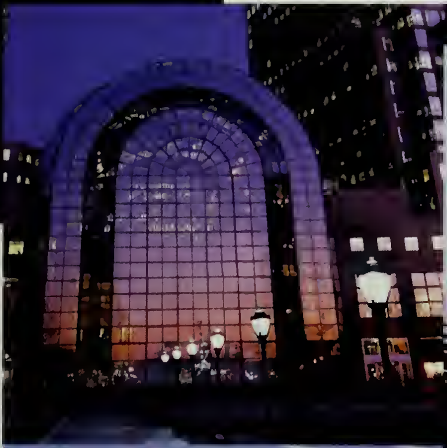

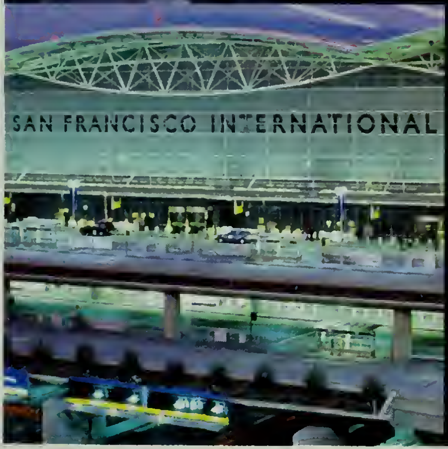

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"I gave Yasu more than he wanted," Gehry says. "If he asked for a cylinder, I'd give him a sphere." But once, he gave him less: Toyota wanted to suspend a large reflector over the orchestra, but Gehry felt it would look wrong, so the acoustician bowed to visual concerns, with no apparent ill effect.

The seating plan puts the stage near the center of the hall and surrounds it with seats on all sides, bringing the audience closer to the players and allowing many patrons to see the conductor's facial expressions. The design dispenses with elements such as a proscenium, orchestra shell, adjustable stage canopy, and suspended reflectors, which are traditionally used to shape the sound and tune the hall. Here, all depends on the walls and ceiling; this unencumbered space is the acoustic equivalent of a high-wire act without a safety net. A moderate capacity of 2,265 seats creates an acoustic advantage over larger halls, including the Philharmonic's previous 3,197-seat venue. "We were always fighting the Chandler's acoustics," said Esa-Pekka Salonen, the Philharmonic's music director and chief conductor. "Disney is responsive, resonant, and enhances our efforts rather than diminishing them." He finds the sound "a lot more detailed, but also more homogenous, unified, and layered."

Critical reaction has been uniformly positive. The highest praise comes from Mark Swed, the *Los Angeles Times* music critic. Just arrived from Boston (and its famed hall) for Disney's opening concert, he privately declared that "as of tonight, Symphony Hall is no longer the finest concert hall in America." My own sense, after sitting in 10 locations during six concerts and rehearsals, is that the hall can deliver superb sound: clear, articulated, immediate, warm, and rich—but not always. A virtuoso pianist produced a muddy bass line by playing too hard and using too much pedal. Two conductors fell short of the formidably skilled Salonen, producing a less transparent and detailed sound, even with a much smaller orchestra. The hall is not a magic wand; it rewards mastery but also exposes anything less. It seems best suited to music of our era, but that might just reflect the strengths and inclinations of the first wave of performers.

Inevitably, the sound quality varies by location. One seat to the side of the stage sounded better than two others nearby, but all had better instrumental balance and blend than similar seats in London's Royal Festival Hall, Denver's Boettcher Hall, and Davies Hall in San Francisco (although not as good as Amsterdam's Concertgebouw). Halfway back, near a side wall, the sound was a bit constricted, but five seats inward it expanded nicely. The sound in the top balcony, usually the best spot in older halls, lacked some immediacy and impact in big climaxes—something I've also experienced in Seattle's recent Benaroya Hall.

I agree with Swed, Toyota, and Salonen that it's too soon for a definitive verdict on the acoustics. The conductor continues to mold the orchestra to the hall, repositioning players, tweaking the height of the risers, and otherwise tinkering with instrumental balance. He says, "I'm curious about the limits of this hall. We haven't reached them yet."

What is clear is that Los Angeles has gained a genuine civic centerpiece, a powerful cultural landmark that could become its most recognizable visual symbol. Gehry has designed a building that greets the world with unabashed drama and serves the art of music with disarming clarity and directness, evoking Mahler in its exterior and Haydn at its center. In time, it may prove to be the most successful fusion of musical acoustics and modern architecture anywhere. ■

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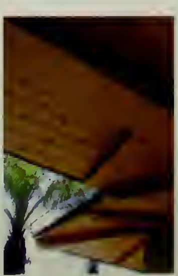

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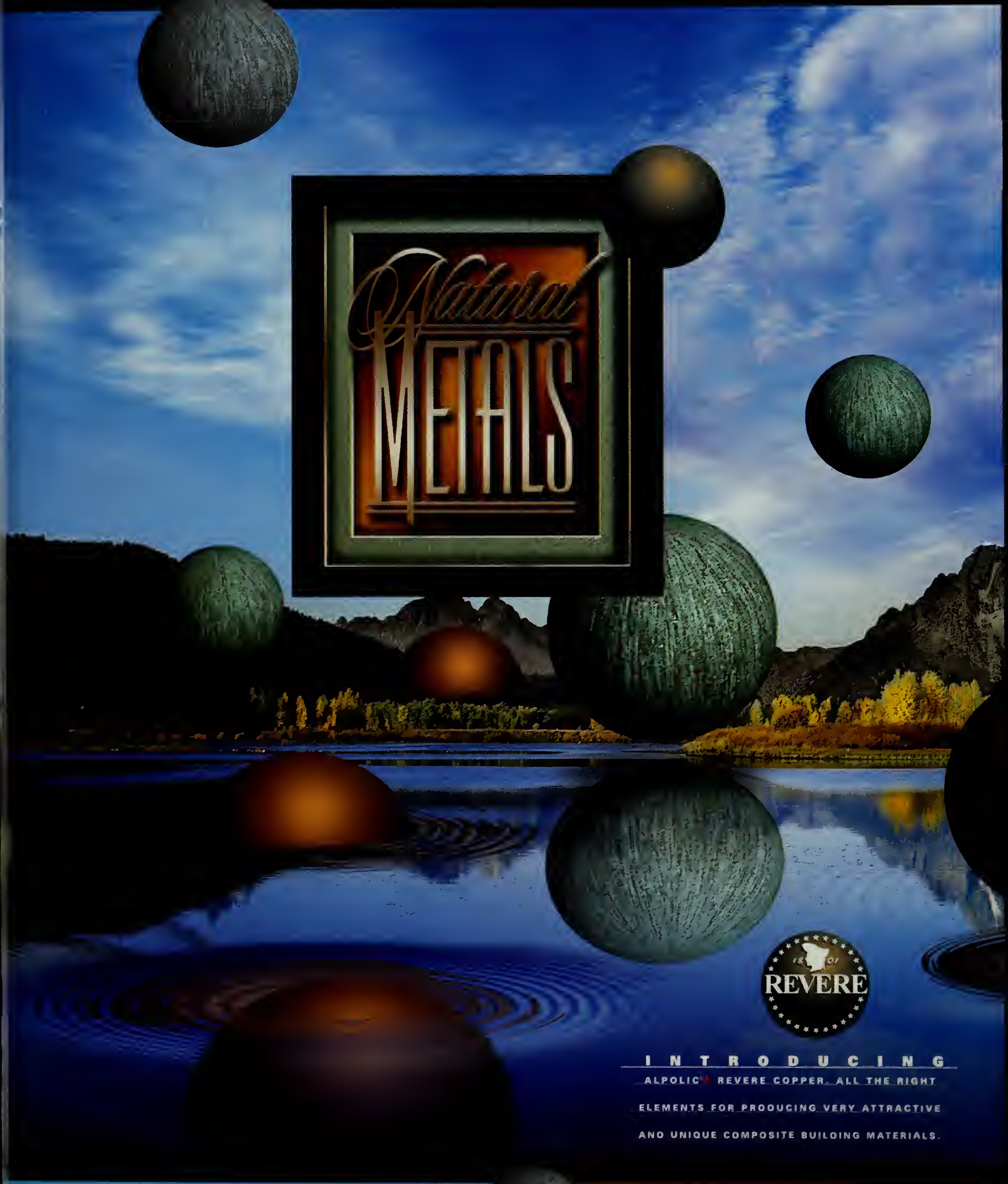
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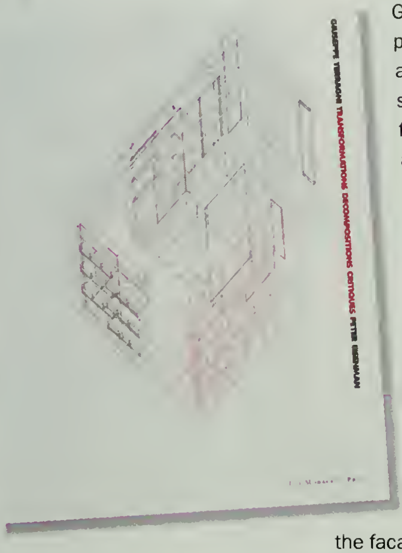
After 40 years of waiting, tomes on two 20th-century architects finally arrive

Books

Giuseppe Terragni: Transformations, Decompositions, Critiques, *by Peter Eisenman. New York: The Monacelli Press, 2003, 304 pages, $60.*

In the mid-1970s, I sent $36 to MIT Press for a forthcoming book on Giuseppe Terragni by Peter Eisenman. That book has now emerged, not from MIT Press but from the Monacelli Press in New York. Eisenman has been working on this tome, we are told in the prepublication publicity, for 40 years. Forty years! That's biblical, and I'm sure that's Eisenman's intention. With him there are always "hidden masses of implications, a veritable world that reveals itself to those whom it may concern—which means those who deserve it." (That's a quote from Le Corbusier, circa 1948, but applies here, I think.)

Peter Eisenman has indeed been "working on" Terragni for a very long time, and while he was not originally responsible for presenting Terragni to English-reading architects (Panos Koulermos and G.E. Kidder-Smith published first), Eisenman rightly "invented" Terragni. By this I mean Eisenman explained Terragni to a suspicious architecture community once convinced that the master of Como was either a second-rate copier of Corbusier, Johannes Duiker, and various middle-European Modernists, or that he was just another Fascist, like all the architects working for Mussolini. For many Modernist architects, Terragni's buildings were often too thick and solid (the Casa del Fascio in Como), too classicizing (the various tombs and monuments), or too "Fascist" (the Danteum and Palazzo Littorio projects).


GIUSEPPE TERRAGNI TRANSFORMATIONS DECOMPOSITIONS CRITIQUES PETER EISENMAN

Eisenman argued strenuously all these years that Terragni could not be judged, or explained, through a Corbusian or Miesian lens. And he brought Terragni to life in lectures and two important articles published about 30 years ago. This book is a magnificently produced expansion of those articles. In it, Eisenman exhaustively analyzes Terragni's two most important masterpieces: the Casa del Fascio (1932–36) and the Casa Giuliani-Frigerio apartment house, both in Como (1939–41).

The book's subtitle, *Transformations, Decompositions, Critiques*, serves as the structuring device for the text. The Casa del Fascio is "transformed," the Casa Giuliani-Frigerio is "decomposed," and the "critiques" are essays by Terragni himself (on the Casa del Fascio, first published in 1936), and by Manfredo Tafuri ("Terragni, Subject and Mask," first published in *Oppositions* in the 1980s). It is significant that Eisenman uses the term "decomposition" rather than "deconstruction." "Decomposition" is a word Terragni used (in his *Relazione sul Danteum*, 1938), and Eisenman is, in fact, decomposing the facades of the Casa Giuliani-Frigerio. He may also be "deconstructing" Terragni, but that's another matter.

Starting with the premise that his book is as much about himself and his way of viewing architecture as it is about Terragni, Eisenman proceeds to attack the subject with myriad drawings supporting a dense, but surprisingly readable, text. He avoids the pitfall of many poststructuralist writers by eschewing much of the lingo. His voice is that of an architect. But his text is not easy. One must stop and examine the drawings after almost every sentence, and if one does so, the reward is there. Using and reusing illustrations to make his point, much as he might do in a lecture, Eisenman makes a convincing case for his "readings," although I'm not so sure that his "method" is quite as revolutionary as he proposes. Nevertheless, for any architect who loves the detail of the craft, this is a book to pore over and return to, time and again.

Thomas Schumacher

Eero Saarinen: An Architecture of Multiplicity, *by Antonio Román. New York: Princeton Architectural Press, 2003, 225 pages, $60.*

Eero Saarinen was one of America's greatest architects, yet in the more than 40 years since his death, no definitive monograph of his work has appeared. Now comes Spanish architect and historian Antonio Román's *Eero Saarinen: An Architecture of Multiplicity*, claiming to be a groundbreaking landmark that "sheds new light on Saarinen's most important works."

Saarinen was often faulted for having designed a wide variety of works in a very short time ("an architect of too many shapes and

too few ideas," a contemporary noted). Thus, the designer of such seminal works as Washington, D.C.'s Dulles International Airport, the CBS Building in New York, and the John Deere headquarters in Moline, Illinois, has been relegated to the purgatory where we often banish controversial, misunderstood, or unfashionable architects like Paul Rudolph, Edward Durell Stone, or Richard Neutra. Román has attempted to "explore the architectural mechanisms by means of which an architect can produce a valuable body of work, despite the apparent lack of unity." Answering the critics, however, and prolonging that tired debate, instead of bringing fresh analysis to the work, seems a curious way to rehabilitate Saarinen's reputation.

Román has chosen several "subjective categories"—creating, dwelling, building, socializing, and judging—and applied them to TWA; the colleges at Yale; Dulles and the St. Louis Arch; General Motors and CBS; and the Sydney Opera House (for which Saarinen was one of the judges) to explore the architect's "multiplicity." Sadly, the author's prose is often dissertational and leaden ("Following his father's interest in comprehensive design, Saarinen envisioned design in a broad scope"), while Román's hero apparently speaks only in platitudes ("Each age must create its own architecture out if its own technology, and one which is expressive of its Zeitgeist").

An Architecture of Multiplicity, moreover, would have been stronger were it not so riddled with errors. The American Embassy in London is on the west side of Grosvenor square, Le Nôtre should be spelled properly, there is no Bradford College at Yale, the atrium photo at Deere is of Kevin Roche's work, and so on.

Factual errors, theory-speak, and pretentious title aside, there is not much new in Román's book, and the illustrations are really disappointing. Handsome though they may be, the use of contemporary black and white images throughout (including Ezra Stoller's old chestnuts) makes the book a sort of Eisenhower-era period piece. That same 1956 Chrysler is still parked in front of TWA.

Antonio Román unwittingly demonstrates that the book on Eero Saarinen has yet to be written. *William Morgan*

Artificial Love: A Story of Machines and Architecture, *by Paul Shepheard, Cambridge: MIT Press, 2003, 212 pages, $16 (paper).*

In *Artificial Love*, Paul Shepheard attempts to assemble a universal theory of structure, one in which "technology is a force of nature," as if all the by-products of mankind, our toasters and skyscrapers as well as our guns and slums, arose as naturally from our primordial past as a fish walking out of the ocean.

Unlike many such books on design, Shepheard's is accessible and entertaining, sustained by anecdotes from literature and the media, as well as theories offered up by a precocious niece and moody brother-in-law. It won't take more than a few train rides to read, which is a virtue considering the weight of the chosen subject. However, the author's short chapters frequently stray into the kind of unfocused musings that float

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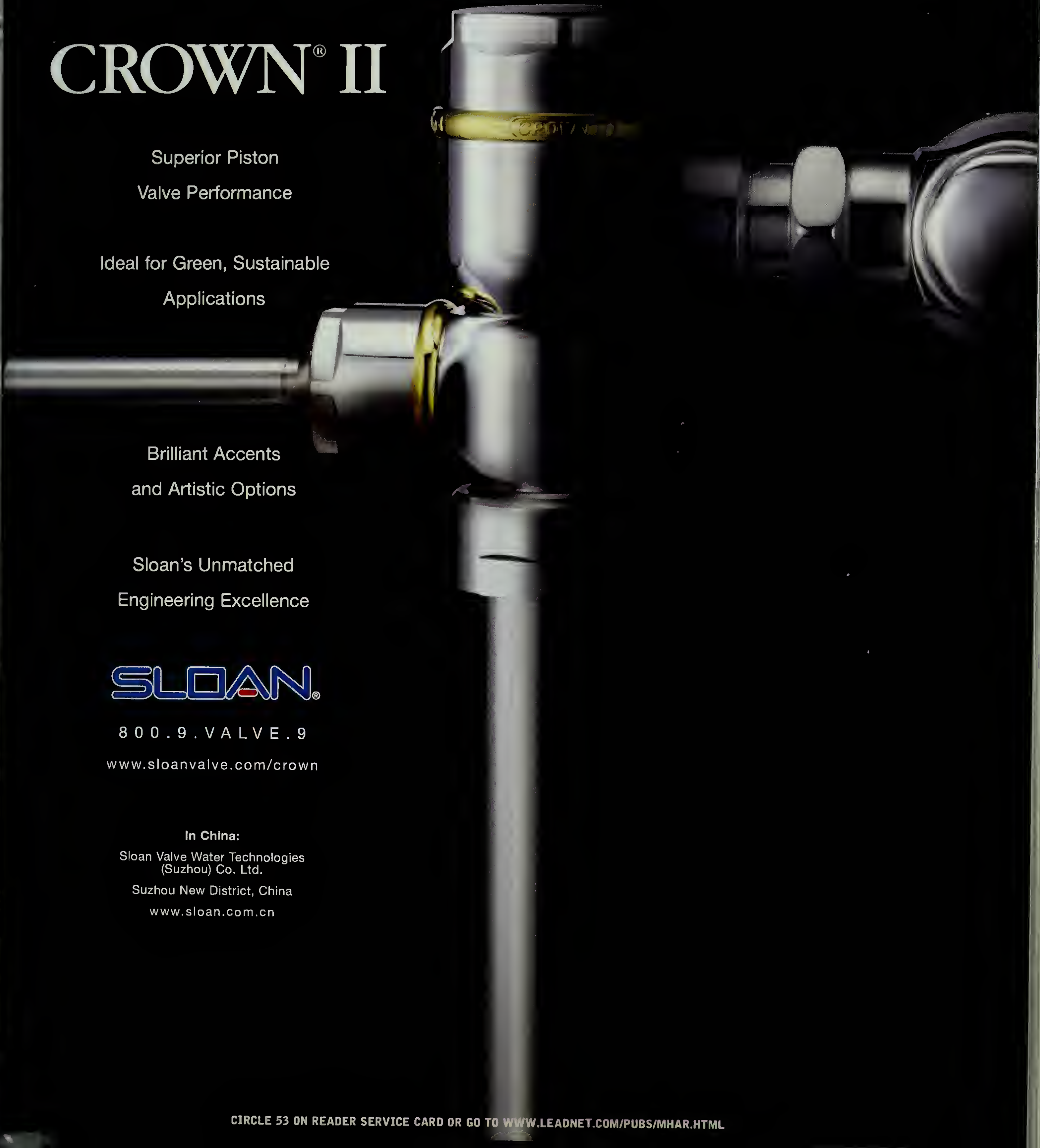INTRODUCING

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around graduate study seminars. Do we need to play a lengthy semantic game, for example, of determining whether a thermostat is a machine, an automaton, or a tool?

For all his love of structure and machines, Shepheard has a low opinion of conventional architecture, favoring instead product design and mechanical engineering. He lionizes the radio-controlled car rather than Radio City Music Hall. "That is why machines seem so effortlessly architectural to me," he writes, "as though architecture really is happening somewhere other than in the buildings."

Shepheard, a British architect who writes from Texas, embraces the state's parking lots and islands of air-conditioned offices, arguing that "all cities, including this turbulent Houston, are no more or less than human nests." This Darwinian argument, confident that all human constructs stem from our genes, is weak, however. Unlike the ants in the anthill, who have no choice but to obey instinct, we can choose to redress our pollution, congestion, and aesthetic blight, rather than to look around and shrug our shoulders, as the author does, and claim "the problems will always be there, like the stars and the planets."
Will Yandik

Yeohlee: Work—Material Architecture, *edited by John S. Major and Yeohlee Teng. Melbourne, Australia: Images Publishing, 224 pages, $65.*

Using the word "architecture" has become fashionable in fashion circles to give a semblance of depth to a field lacking much of a history of critical discourse. Clothing designer Yeohlee Teng, though, has always thought of her work in architectural terms—creating elegantly disciplined garments envisioned as shelter for the body and engineered to minimize waste of fabric, labor, and time. Born in Malaysia but long based in New York, Yeohlee first made a name for herself with a hauntingly simple cape that Robert Mapplethorpe wrapped around Lisa Lyon in a famous photograph from 1982. Remarkably, the cape is made from one piece of fabric, with no waste.

Since then, Yeohlee has explored structure, enclosure, and movement in clothing, using both innovative and traditional materials. She designs for people she calls "urban nomads," modern individuals who don't have time to change their clothes as they run from a business meeting in New York to a flight to Kuala Lumpur. In 1998, she exhibited her designs at the Netherlands Architecture Institute/NAI alongside the buildings of Ken Yeang, with whom she grew up in Penang.

Reflecting Yeohlee's intellectual approach to clothing design, this book includes a collection of thoughtful essays by people such as Museum of Modern Art curator Paola Antonelli, Walker Art Center curator Richard Flood, and Richard Martin, who was the curator in charge of the Costume Institute at the Metropolitan Museum of Art until his death in 1999.

Not surprisingly, the book itself sports a crisply modern design with plenty of white space and a striking black-and-white cover that shows how powerful simplicity can be. *Clifford A. Pearson*

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Fumihiko Maki (far left); Reihoku Community Hall, Hitoshi Abe (center); Springtecture B, Shuhei Endo (left). PHOTOGRAPHY: © DAICI ANO/NACASA & PARTNERS (CENTER PHOTO)

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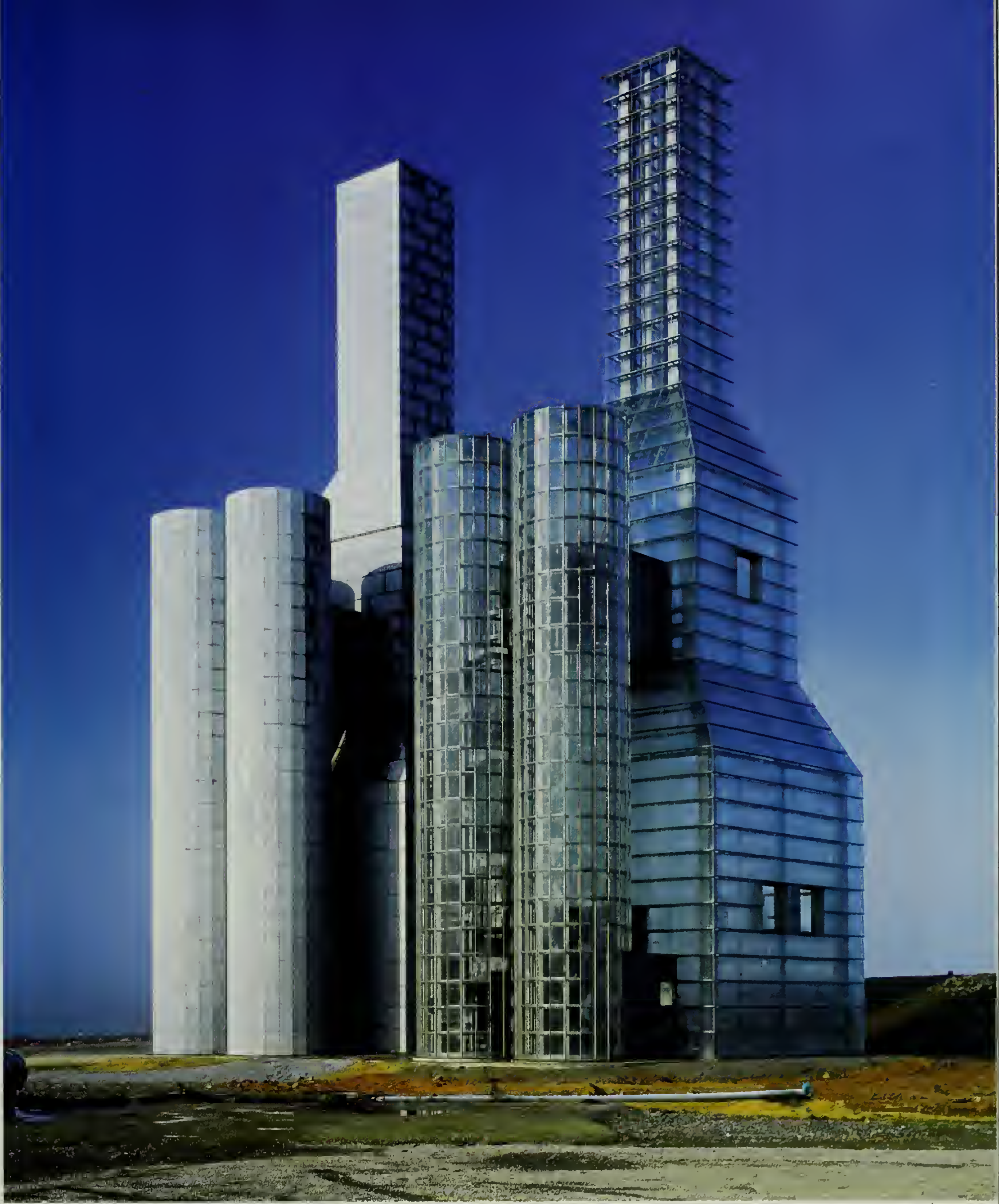
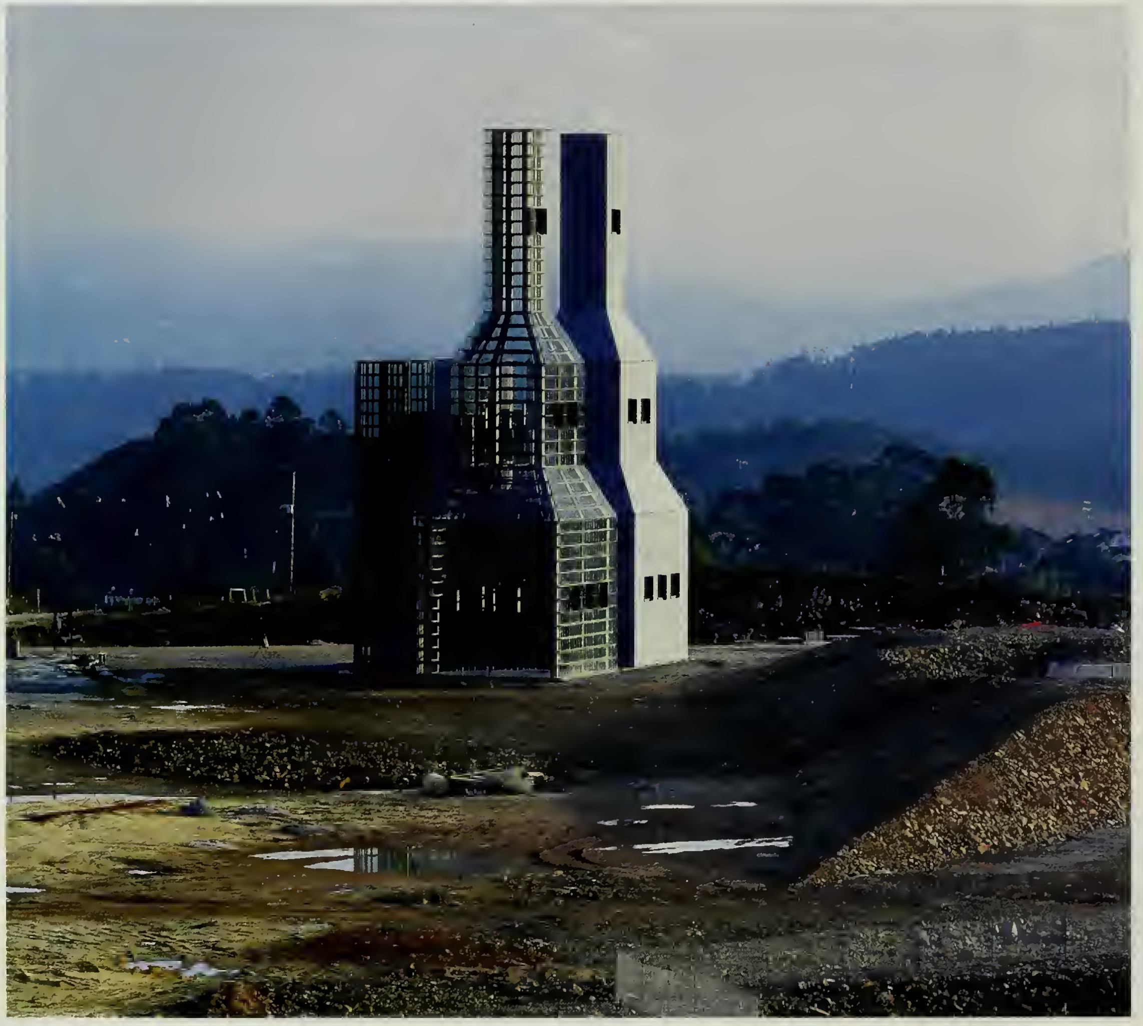


By Ingrid Whitehead

Two towers announce Galicia's new City of Culture

In Galicia, the region of Spain's Iberian Peninsula that lies farthest northwest, visions abound. It was a hermit's vision in the 9th century that led people to the body of Santiago, or St. James, first cousin to Jesus. A town was built around the church that housed Santiago's grave, and thus Camino de Santiago (The Way of St. James) began, leading pilgrims along the "Pilgrim's Way" to Santiago de Compostela, the Holy City (and UNESCO World Heritage City) at Galicia's heart.

Today, it's part spiritual quest and part Bilbao Effect that have led Galician city planners, ministers of culture, university chairs, and architects to find a way to bring pilgrims and tourists to the region. A modern city of art and culture, the Ciudad de Cultura, is springing up beside Santiago de Compostela as a place where the history and heritage of Galicia can be honored and exhibited, where new technologies converge with the old in an 810,000-square-foot, $125 million cultural complex. Peter Eisenman won the competition to design it from a shortlist that included Rem Koolhaas, Jean Nouvel, and Daniel Libeskind; and two striking towers by architect John Hejduk have risen as the city's first built structures.

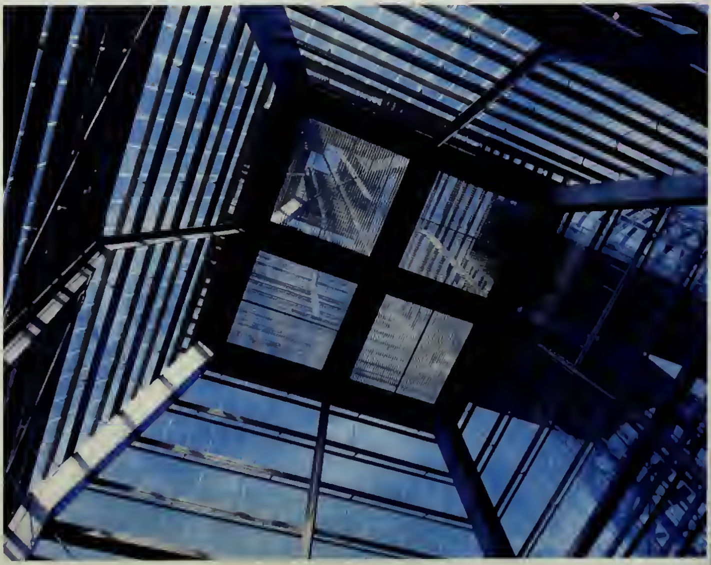


The Hejduk Towers are iconic beacons at the entry point of the City of Culture. The steel structures are clad in granite and glass tiles, respectively.

The two steel towers, which Hejduk designed with Antonio Sanmartín G. de Azcón supervising and serving as project architect, will eventually be followed by a museum of Galician history, a center for new technologies, a music theater, a library, and an arboretum.

The towers stand in memorial to Hejduk, the former dean of Cooper Union's School of Architecture. These aren't Hejduk's first buildings in the region—his Centro Civico la Trisca building in Santiago de Compostela was completed in 2001. He originally designed the towers in the early 1980s as botanical lab structures for Santiago de Compostela. Politics got in the way, and the project floundered. Sanmartín had been involved in the original project, and as part of the City of Culture team, he and Eisenman, Hejduk's longtime friend and colleague, rallied to get the towers built. With the exterior geometry of Hejduk's original design preserved, the towers will be used as exhibition spaces and viewing stations, as the 82-foot structures provide views of the entire city.

Hejduk died in 2000, before the towers were built. However, according to his daughter, Renata, he died knowing his vision of the towers would become reality. "Peter promised my father that the towers would be built," said Renata Hejduk, "and he and Antonio have honored that promise." ■



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Putting Art in Its Place: An Interview with Victoria Newhouse

By Suzanne Stephens

After a new museum has opened to great fanfare—and the architects have gone on to their next project—comes the verdict of the museumgoers, curators, and perhaps those who create the works on view. Often the architecture seems at odds with the exhibited work. Victoria Newhouse, an architecture historian, is completing Art/Power/Placement *(Monacelli Press), an investigation of the manner in which art is displayed and perceived within a museum environment. In the book, which combines history with criticism, Newhouse explores such topics as the shifting venues of some of the best-known artworks, including the* Victory of Samothrace *and the* Laocoön. *But she also discusses problems of displaying art in the museums built in the last few decades.* ARCHITECTURAL RECORD*'s special correspondent, Suzanne Stephens, recently talked with Newhouse about how well the work of art is served or not served by architecture, and considerations that architects and their clients should take into account.*

AR: *In your forthcoming book,* Art/Power/Placement, *you focus on the way that the installation of art influences the spectator's perception of it, which has obvious implications for the architecture of the museum. What impelled you to take on this subject?*

VH: When I wrote *Towards a New Museum* (Monacelli Press, 1998), I addressed the importance of the container and its content, especially the ongoing conflict between a neutral and a contextual setting for showing art. The elusive issue of context piqued my interest. Just as an event—the Yoshi Tanaguchi expansion of the Museum of Modern Art (MoMA) in New York—spurred me to write the museum book, since I felt it would change the character of the institution, so an exhibition I saw prompted me to write *Art/Power/Placement*. That exhibition was *Jackson Pollock*, curated by the late Kirk Varnedoe, which opened at MoMA in November 1998, the year my museum book was published. Seeing the show in New York and then the next year in London at the Tate Gallery was a revelation: I was overwhelmed by how different the works looked in the two instances, and how different were the messages conveyed.

First, the one in London made magnificent use of natural light, whereas the one at the Modern depended on artificial light. Art looks so much better in natural light. Second, there was the sequence. In MoMA's Pollock show, installed by Varnedoe, the artist's late, post-poured work was downplayed: You could easily have missed it. In London, it provided a dramatic climax.

AR: *But you can't depend on natural light alone.*

VH: Certainly natural light needs to be supplemented by artificial light, and I have no problem with a mixture—but the way natural light shifts in tone affects the way you see the artwork. In some museums, such as Louis Kahn's Kimbell Museum in Fort Worth, the top lighting makes you subtly aware of the clouds and metereological changes outside. But in other museums, such as the just-finished Modern Art Museum of Fort Worth by Tadao Ando [RECORD, March 2003, page 98], the light is too homogenized. You have the feeling you are in an artificial cocoon.

AR: *A number of museums have taken over old factories and warehouses because of the sheer space allowed. Does this solve the lighting problem? Any good examples come to mind?*

VN: Light in the Dia:Beacon building is quite successful. It's an old Nabisco factory, just about an hour by car from New York City, and has north-facing skylights, many clerestory windows, plus conventional windows [RECORD, October 2003, page 108]. In other words, every kind of daylight is available. Also, a light artist, Robert Irwin, worked on the renovation. What could be better? An artist often has a feel for the installation of art objects that is far superior to that of curators and architects. Betty Parsons used to have artists install shows of other artists in her gallery in New York during its heyday in the 1940s and 1950s. The Danish Neoclassical sculptor Bertel Thorwaldsen, who died in 1844, played an active role in designing a museum in Copenhagen for his work, which is a model for the use of natural light. He said both horizontal (side light) and vertical (top light) were needed.

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Kunsthaus, Bregenz, Austria, by Peter Zumthor, exterior and an interior gallery (1); Kimbell Art Museum, Fort Worth, by Louis Kahn (2); the Guggenhiem Hermitage in Las Vegas, by Rem Koolhaas of OMA (3).

AR: *Peter Zumthor's Kunsthaus in Bregenz, Austria (1997), explores yet another approach to lighting* [1]. *How does his museum fare in your estimation?*

VN: Bregenz is like the Kimbell in its ingenious use of light. Zumthor designed a glass-walled box within which gallery levels are inserted—supported by asymmetrically placed concrete bearing walls. Horizontal space between each of the gallery floors allows natural light to come in through the exterior glazed walls. It is then filtered down through open-jointed, etched-glass ceiling panels and supplemented with artificial light. The diffused illumination would be perfect for paintings, except you have the same problem as at the Kimbell with wall textures. Here raw concrete absorbs the light, and polished gray terrazzo floors reflect it. This presents a problem for seeing oil on canvas, but it works for other kinds of art.

AR: *Is this concern for the nuances of light something that has only occurred since the development of the museum in the past few centuries?*

VN: Actually, the importance of lighting for art was already understood in antiquity. Recent discoveries suggest that in the 7th century B.C. a number of Greek temples had skylights made of Parian marble tiles from the Cyclades. The marble was translucent, like alabaster. Even the Parthenon may have had some form of a skylight, and sidelighting from windows facing the statue of Athena. We have long known about the windows, but because they were screened by the temple's peristasis, the ceiling would have been a more important source of light.

AR: *In your book, you discuss very particular architectural elements that must be taken into account when mounting art, such as the nature of the museum wall. What is it about the wall that is so critical?*

VN: An enormous body of theoretical writing by Rosalind Krauss and others has been devoted to the relationship between the art object and the wall. I talk about the more mundane subject of the physical wall itself. The important thing is scale: The wall should not be too high or too long for the work displayed on it. Soft materials, such as plaster and wood, are better than hard materials like stone and metal, since the softer materials provide a more harmonious transition to the artwork. Hard materials make an older painting look disjunctive, and stone walls in particular have intrusive masonry joints that are distracting. Most curators argue that stone walls kill art, but architects continue to design them. Even for the Kimbell, Kahn used travertine: Paintings there have to compete with the masonry joint lines of the stone. On top of that, stone has a tendency to leach away the painting's light. In the Kimbell, the work looks better on temporary partitions than on the travertine walls [2].

AR: *We all know Rem Koolhaas's Guggenheim Las Vegas museum for temporary exhibitions has closed. But you found Koolhaas's second museum space, the Guggenheim Hermitage in the Venetian Resort in Las Vegas (2001), which remains open, to be problematic for displaying art. Why?* [3]

VN: For an architect who is as sensitive to materials as Koolhaas, it is surprising he would use Cor-ten steel for peripheral walls and for the thick movable panels partitioning the galleries [RECORD, January 2002, page 100]. This is possibly the most ill-considered material used as a background for art in recent memory. The museum was designed to show works from the New York Guggenheim and the Hermitage in St. Petersburg. Koolhaas's rationale was that the velvety quality of the waxed, rusted steel would replicate in a modern idiom the rich, colored textiles against which paintings are seen at the Hermitage. This interesting concept just didn't work.

The idea for the Guggenheim museum in Las Vegas was inspired by the Bellagio Gallery of Fine Art, which the casino owner, Steve Wynn, opened in Las Vegas in 1998. The idea came to the Guggenheim's director, Thomas Krens, when he learned that half a million people visited the gallery in the first eight months it was open and paid $12 each to see Impressionist and contemporary paintings. As he said, "If you're in the missionary business, you go where the heathens are. This is what we did in Las Vegas." Wynn's gallery installation is as funky as Las Vegas [4]. Paintings are hung against black-velvet-covered walls. The carpeting is brightly patterned and garish, all very high kitsch. Koolhaas's Guggenheim space is exquisitely elegant—a veritable strongbox insulating the reality of the genuine masterpieces from the make-believe of the casinos. Located in a hotel where escalators whisk visitors upstairs to Venetian-style canals, complete with gondolas and "Il Sole Mio" piped in for background, it is hard to fault the architect for his bid for authenticity. Unfortunately, he achieved his goal at the price of the art.

AR: *Let's look at wall colors and frames. What sort of colors work best?*

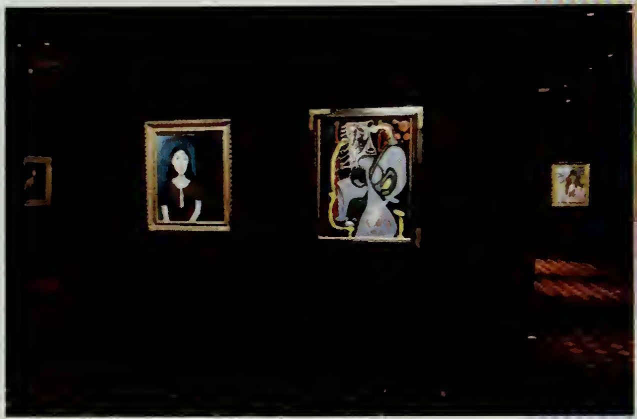
VN: Color depends on what is being shown. Nineteenth-century artists protested bright red walls in the universal expositions that drew such crowds at the time. However, last winter at the Metropolitan Museum's *Manet Velasquez: The French Taste for Spanish Painting* exhibition in New York, red walls proved to be tremendously flattering to the 17th-century Spanish paintings hung on them. The exhibition originated at the Musée d'Orsay in 2002, where all the walls were a putty-gray and made these paintings appear more somber and less exciting.

AR: *What about the frames?*

VN: Frames chosen by the artist should be left in place if possible. When the Museum of Modern Art reopened after its 1984 renovation and expansion by Cesar Pelli, the museum's director of painting and sculpture, William Rubin, shocked the art world with his homogeneous reframing of many paintings. He substituted flat, narrow, antique gold strips for the individually distinct, deeply carved, gilt frames of the Post-Impressionists.

While some of the older frames had been added by former owners, others had been chosen by the artists. It is tremendously presumptuous to change the ones the artists selected, because frames affect the way the work was seen historically. This situation was reversed at MoMA's millennium exhibition, *Changing Visions: French Landscape, 1880–1920*, where the curator, Magdalena Dabrowski, not only used some of the muted chocolate brown, gray, and dark greens seen in the art dealers' galleries and collectors' homes of the time, but replaced the modern strip frames with traditional, carved, gold ones, like those originally used. The older frames' high profile created a repoussoir effect that gave the pictures added depth.

AR: *What about the size and length of walls. What do you think of the requirements of the painting vis à vis the architecture?*



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The Bellagio Gallery of Fine Art, Las Vegas (4); an exhibition gallery at the Pulitzer Foundation for the Arts in St. Louis, by Tadao Ando (5); Ellsworth Kelly's own installation of his paintings in the Pulitzer Foundation (6).

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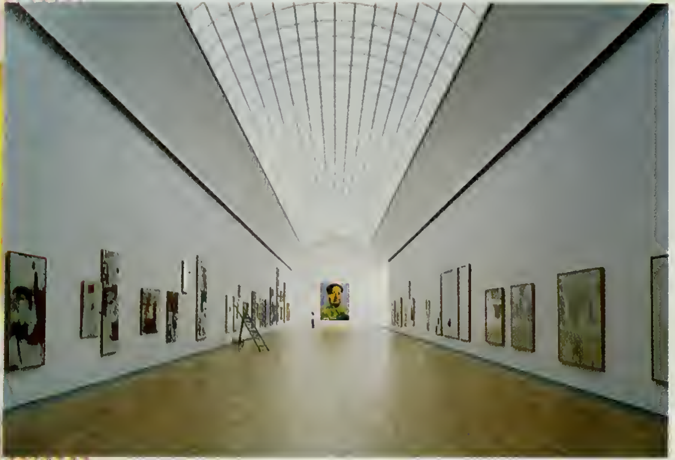

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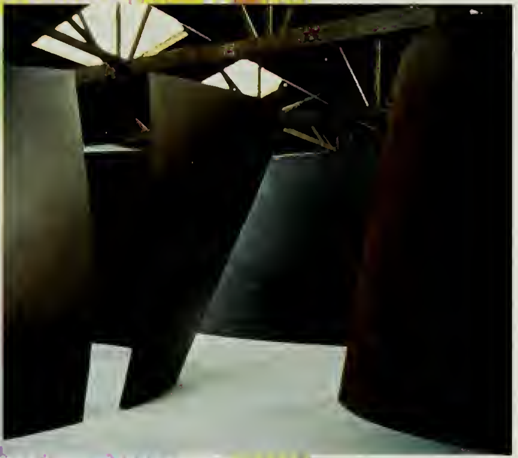

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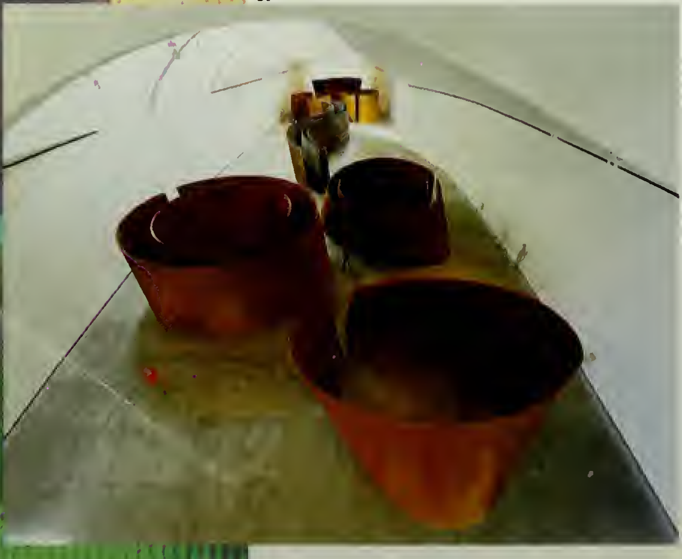

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Hamburger Bahnhof Museum, Berlin, renovated by Josef Kleihues (7); Richard Serra's *Torqued Ellipses* (1996–97) at the Dia:Chelsea in New York in 1997–98, in a space renovated by Richard Gluckman (8); and in 1999, in the Bilbao Guggenheim in Bilbao, Spain, designed by Frank Gehry (9).

VN: Long walls in contemporary buildings are usually difficult to hang, certainly with Modern architecture. Tadeo Ando has a habit of creating one principal gallery with long walls, which are inimical to art. In his design for the Pulitzer Foundation for the Arts in St. Louis, the grand, elegant, main gallery has a 170-foot wall that is interrupted at one end by a monumental stairway [5]. Even though the stair reduces the hanging area by about one third, the remaining wall is still too long to fill satisfactorily. In its proportions and natural illumination, the Pulitzer's large gallery is architecture at its best, but the long wall is a challenge for painting. Once again, an artist, in this case Ellsworth Kelly, met that challenge with the installation of his own work [6]. Neither does the long wall work in the largest gallery at Gehry's Bilbao Guggenheim [RECORD, October 1997, page 74]. Philip Johnson has always said it is best to have only one painting per wall, and Frank Stella says maybe two. But without the framework of window alcoves, columns, pilasters, and decorative moldings found in pre-Modern buildings, such as the Louvre, objects often appear to be cast adrift in space.

AR: *The spaces by Josef Kleihues for the Hamburger Bahnhof Museum für Gegenwart in East Berlin (1996), in new wing of a former railroad station, are dramatic, but the walls are 263 feet long. What do you think of the effect on art?* [7]

VN: It is problematic. The walls are too high and the space in relation to them is too narrow—the gallery is 46 feet wide. You feel as if you are in an endless corridor. On these vast planes, large works of contemporary art from the Eric Marx collection appear like a series of billboards lost in a desolate landscape.

AR: *What about the scale of the artwork to the architecture? In some cases, the work is so large, it requires very different considerations.*

VN: The scale of art and the space in which it is seen is the most acute problem of today's displays. The proliferation of large artworks since the late 1940s has spawned the misguided assumption that the bigger the exhibition space, the better. Yet the one-size-fits-all approach shortchanges not only the artists producing small-scale art, but large work as well. Richard Serra's installation of *Torqued Ellipses* (1996–97) in three different venues is a good case in point. These Cor-ten steel behemoths, 40 tons each, with walls that rise as high as 13 feet, transcend traditional sculpture as we know it, becoming more akin to architecture. Indeed, Serra has said that the pieces are predicated on the body's movement through them, something like Le Corbusier's *promenade architecturale*. In order to experience the forms and material, as well as the way light plays on the works' contours, the visitor must enter the opening slit in the sculpture's wall and follow a disorienting maze of spaces.

In one installation in 1997, three *Torqued Ellipses* were displayed inside Dia:Chelsea's single-story, warehouselike building, across the street from its main four-story art center on West 22nd Street in Manhattan [8]. The gallery was big enough to allow walking around each piece, yet snug enough to provide a framework for them. Placed just a few feet below the dark wood roof beams and wedged into the space illuminated by skylights, each sculpture felt like a powerful coil about to spring. Serra remarked, "The outside of the form reads better. Its definition is clearer in relation to a vertical plane than it would be to a flat, open landscape." At Gehry's Bilbao Guggenheim the series shown in 1999 was less effective [9]. It was installed with Serra's long Cor-ten steel *Snake* (1996), which is part of the museum's permanent collection. In a gallery bigger than a football field, with ceilings too high to relate to the sculpture, too much space around the pieces, and walls that echoed the curved sculpture, the eight *Torqued Ellipses* lost the tautness achieved by the three in New York.

At Dia:Beacon now, two *Torqued Ellipses* and a torqued spiral (*Untitled*, 2000) are crammed into a space so constrained one can hardly see individual pieces from a distance. However, the installation encourages movement through them, and they come off far better [10].

AR: *You mention artists' sensitivity to installing art: what about architects designing exhibitions?*

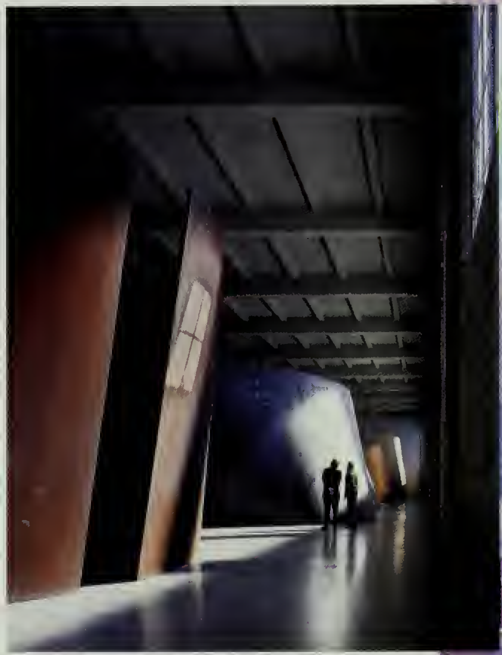
VN: Architects are especially good with installations of their own work, as was demonstrated in 1986 with *The Architecture of Frank Gehry* show that Gehry installed at the Walker Art Center in Minneapolis. Gehry responded to a request by Mildred Friedman, the design curator, for an architectural space you could walk into. He created a fish-shaped, shingled structure to display his fish lamps made out of vinyl shingles. Then Peter Eisenman took that experience a step further with *Cities of Artificial Excavation* at the Center for Canadian Architecture in Montreal in 1994. He designed a new space using his own vocabulary, virtually destroying what had been there. The installation was like an excavation that revealed an Eisenman building [11]. But some architects' work has not been displayed well.

AR: *Such as?*

VN: The exhibition of Jean Nouvel's architecture at the Centre Pompidou in 2001–02 was a disappointment. Because he rarely draws, and considers small exhibition models to be merely aesthetic objects unrelated to the reality of a built structure, Nouvel relied on projected images. The ensuing slide show in a black-box setting was useless in terms of understanding the architecture [12]. Nouvel's work is about light, and to see projected images in a dark setting was disappointing. It needed film clips and computer walk-throughs at least, but that idea was dropped for budgetary reasons.

AR: *Many of these examples sound prescriptive for the ideal installation. Do you have a favorite museum for viewing art?*

VN: While there are problems with different kinds of installation, there are no hard rules for good museum display. My favorite environment is the artist's studio, free of preconceived ideas, with no labels or didactic intentions. Without having seen Renzo Piano's new Nasher Sculpture Garden in Dallas (page 100), I would say the best museum for sculpture is Carlo Scarpa's tiny addition of 1957 to the Canova Museum in Possagno, Italy. Everything is right, the light and materials are perfect: It is sheer magic. For painting, I would argue that Frank Lloyd Wright's Guggenheim (before Gwathmey Siegel's intrusion destroyed the circulation) was great for the medium-size easel paintings for which the museum was intended. In face, Wright had the artist's studio in mind when he designed the canted walls, which function like an easel. ■



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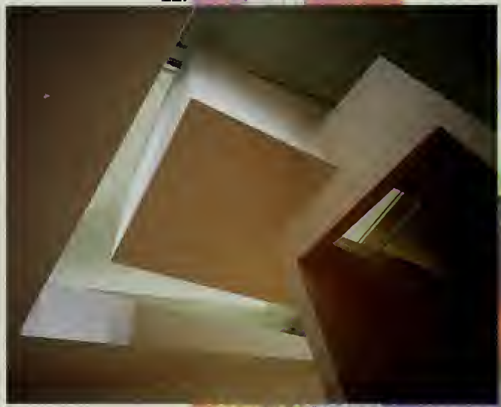

Richard Serra's two *Torqued Ellipses* and a torqued spiral (*Untitled*, 2000) at Dia:Beacon in Beacon, New York (10); Peter Eisenman's *Cities of Artificial Excavation* installation of his architecture, at the Center for Canadian Architecture in Montreal, 1994 (11); and the exhibition *Jean Nouvel* at the Centre Pompidou in Paris, 2001–02 (12).

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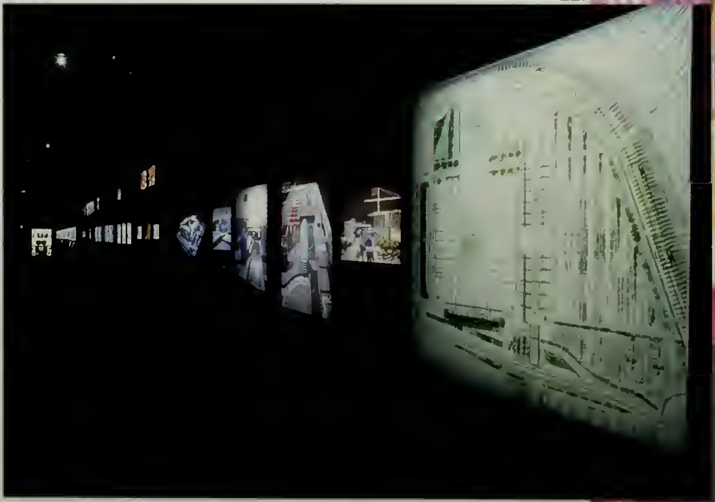

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Are museums suffering from architectural overload?

The recipe for new museums includes an eye-catching form, a high-design architect, and money. What happens if the user gets indigestion? A clinical look

By Suzanne Stephens

By now, no one north of Patagonia needs to be told that the museum is architecturally the most significant building type of our era. As cultural icons, museums act as magnets that can help a city or town establish its own identity, or consolidate its position on the touristic map. Gone are the days when museums were seen as dusty mausoleums. Instead, they have become architectural extravaganzas, where you go for performances, films, shopping, dining—oh, and to see the works on view. A cadre of high-design architects have forged their reputations, or at least burnished them, with their formally evocative work in this area. As such, these "starchitects" function as powerfully effective emissaries of architecture's contribution to culture. But criticisms keep mounting that so many of these museums emphasize architecture at the expense of the objects on view. You could say this era began in 1959 with the completion of Frank Lloyd Wright's Guggenheim Museum in New York (below). Artists lambasted it for its spiraling, canted-wall exhibition spaces. (Not all agree with them: Victoria Newhouse defends the original Guggenheim, while criticizing other museums, in "Putting Art in Its Place," page 80.)

And in spite of criticism, the museum boom continues. Judging by the current crop of museums shown on the following pages, and by reports of numerous others currently in construction, it is not screeching to a halt. At the same time, financial problems have precipitated the closing or canceling of construction of several, and delayed or downsized others (see News, page 24). For example, Rem Koolhaas's $200–300 million design for the Los Angeles County Museum of Art, which called for tearing down most of the site's existing structures, was sacked about a year ago. Now LACMA and philanthropist Eli Broad are in serious talks with Renzo Piano to add a $50 million building to the complex.

Quite often, the controversy over the cost shakes up the museum's administrative structure. When Koolhaas's design for the $200 million expansion of the Whitney Museum in New York was aborted last May, Maxwell Anderson resigned as the director, in great part because he had backed the expansion, coming into conflict with powerful board members. According to the *The Hartford Courant* (July 25, 2003), the resignation of the director of the Hartford Atheneum in Connecticut, Kate M. Sellers, followed by the departure of the chairman of the board, was linked to the scheme that the Dutch firm UN Studio (Ben van Berkel and Caroline Bos) came up with for the museum. Now the scheme has been jetti-

Arguably, Frank Lloyd Wright's Guggenheim Museum (1959) in New York started it all: The architect creates an instant icon that draws crowds curious to see the architecture—and supposedly the works on view.

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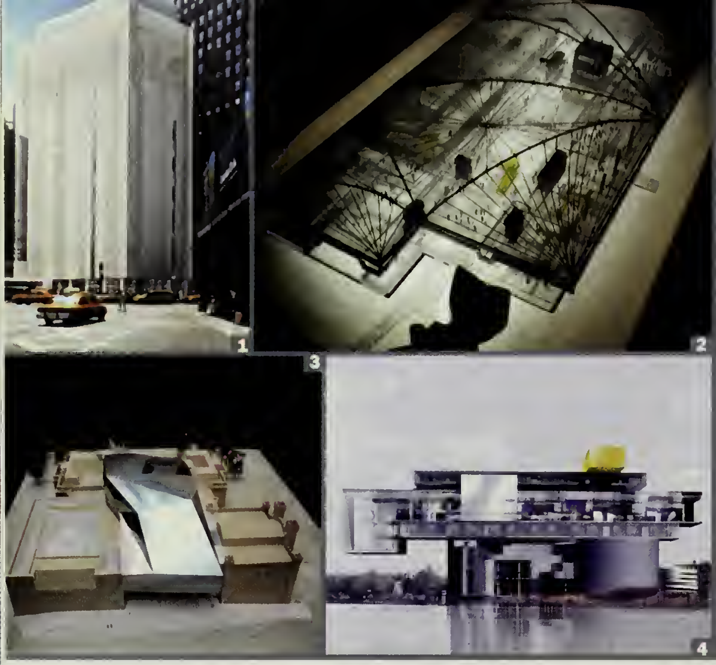


Goodbye to all? 2 Columbus Circle for the Museum of Arts & Design, New York City (1) is being worked on, but Rem Koolhaas's Los Angeles County Art Museum (2), UN Studio's scheme for the Hartford Atheneum (3), and Jean Nouvel's Pittsburgh Science Center (4) are dead.

soned by the new director, Willard Holmes, who dislikes the idea of closing the museum for a two-year construction period. An expansion is still in the offing, but the particulars are yet to be decided.

At least the fracas over the Hartford Atheneum didn't involve potential litigation by the museum, as the *Pittsburgh Post-Gazette* (May 14, 2003) reported to be the case when Jean Nouvel was fired by Carnegie Museums of Pittsburgh. Nouvel's scheme for the Carnegie Science Center, one of the four components of the group, was ditched last spring because the cantilevered design exceeded its $90 million budget. By late November, Carnegie was said to be close to agreeing that Nouvel could keep the $1 million he had been paid; but it has withheld $171,000 he had also billed.

These are contentious times. Although museums are hardly alone in being affected by the shaky economy, their high-profile status spurs questions about firings, delays, and downsizing. Is there more than the economic turbulence at fault? Indeed, some museum controversies aren't just about money: The brouhaha created by plans to totally redo Edward Durell Stone's Gallery of Modern Art of 1964 (now known as 2 Columbus Circle) for the Museum of Arts & Design (formerly the American Craft Museum) in New York with a new scheme by Brad Cloepfil of Allied Works is one case in point. Cloepfil, an up-and-coming architect who designed the Contemporary Art Museum St. Louis (page 124), has attracted a lawsuit from three New York preservation groups seeking to save the Stone building. Opposition even includes heretofore nonpreservation types, such as Herbert Muschamp of *The New York Times* (November 24, 2003) or critic Michael Sorkin (Critique, page 59), who want to keep it for reasons of architectural character.

MUSEUM DIRECTORS JOKE ABOUT THE "NEW BUILDING SYNDROME": DIRECTORS LEAVE WHEN THE BUILDING IS FINISHED.

What is going on? It's easy to blame the architect, especially a high-design type. On the other hand, the fundamental problem could be attributed to the balance of power between the architect, the museum director, and the board of trustees. Ken Carbone, the designer whose firm, Carbone Smolan Agency, has been responsible for the graphic programs for a number of museums, is now completing a survey of museum directors, curators, architects, and others involved in the field, to see how architecture can better help the institutions. In casual conversations with museum staffs, Carbone increasingly got the sense that the ultimate user—the museumgoer—was being left behind in the grand scheme of things. His more official survey, which he is still conducting, reveals that several years after a museum's opening, a wide gulf exists between the expectations of the clients and the actual physical result. In order to further explore the survey's implications, Carbone has organized a daylong symposium, to be held on February 14 at New York City AIA's Center for Architecture.

Other insights the survey presents are also intriguing. For example, both the museum directors and architects insist that the best client is a strong client, yet many museum directors feel they are in a weak position, "overshadowed by the presence of the name architect," as Carbone puts it. As Alan Shestack, deputy director of the National Gallery of Art in Washington, D.C., says, "The architects I know personally who are successful in obtaining commissions are very articulate and good at selling their ideas to a group of trustees. They win you over. Directors might be awed by it and feel once the board has bought into the architect's vision, it is very hard to oppose any aspect of it." One director told Carbone, "Many trustees think if your degree is in art history, and you do not have an M.B.A., somehow you are going to be a little softheaded. The museum director is just somebody the trustees hire, like the foreman of the ranch."

Then, too, some museum directors may not have that much experience carrying out huge expansion campaigns and working with architects. According to the American Association of Museum Directors, 40 percent have been on the particular museum job for five years; 50 percent for 10 years. Carbone suggests these statistics indicate that probably a generation younger and newer at the job has landed a heavy responsibility to deliver the museum expansion to a board of directors already committed to the project. "Few museum directors do this more than once," Carbone says,"except for Glen Lowry [director of New York's Museum of Modern Art], who went through the process three times before the MoMA expansion."

Directors of museums often joke about "New Building Syndrome," where the director leaves as soon as the museum expansion is finished. The reason? It can be exhaustion, or because the board seeks a fresh face to go after new money for the collection and operations. In September, Charles Desmarais, the director and C.E.O. of the Lois and Richard Rosenthal Center for Contemporary Art in Cincinnati, designed by Zaha Hadid [RECORD, August 2003, page 87], stepped down from his post four months after the opening of the much-heralded museum. Board member and donor Richard Rosenthal was quoted in the *Cincinnati Enquirer* (September 24) as saying, "People just got tired, and a new energy artistically and managerially will be good for everyone." Peter Marzio, director of Houston's Museum of Fine Arts, also attributes the revolving-director problem to the tendency for museums to exaggerate future attendance numbers to bolster fund-raising enthusiasm. "You raise the expectations so high that you can't possibly sustain it," he says. "So if the museum doesn't do what it is supposed to, the director gets fired."

Other factors besides a realistic working relationship between the architect, the director, and the board need to be considered to create a happy end result. Take the program: MoMA director Glen Lowry, whose museum is currently being expanded by Yoshi Tanaguchi and Kohn Pedersen Fox, explains, "We did a program of requirements long before we looked for an architect. Often programs get written with the architect. We made the decision that we couldn't figure out which one to hire unless we knew what we wanted to build." Then again, the museum may be overly ambitious in its allocation of space to galleries: As Shestack says about the National Gallery, "We have as much exhibition space as we need in this museum. A visitor cannot see it in one day. So why would we want to put more stuff on view if we're already exhausting the visitor?" One director pointed out that an expensive expansion was often used as the solution for raising money for repair and maintenance—the dull part. No one wants to donate money to an auditorium addition, but if a glamorous architect and a big-deal expansion is part of the mix, voilà.

The problem is that in the long run, too many museums have not thought about operating costs. The Milwaukee Art Museum's debt crisis (News, page 24) stems, some say, from a relatively smaller donor circle, as compared to the large supply of deep-pocketed types who run cultural oases elsewhere. In New York, trustees of the Pierpont Morgan Library and of MoMA could decide with a chilling aplomb to literally tear down previous expansions that were 10 and 20 years old, respectively, in order to plunk down larger, newer, and costlier models.

Museums with weak collections, or none at all, naturally hope that a great work of architecture will draw an audience. Glen Lowry insists the collection and the way it is installed are most important. "The building is an added enhancement," he says. "The only analogy I can think of is this: You buy a great bottle of wine. You can drink it in a plastic glass or a crystal goblet. The bottle of wine does not change, but it's going to taste infinitely better in the crystal goblet than it does in the plastic glass because your sensitivity and your perceptions of the wine's perfume will be enhanced by the crystal goblet. But let's not forget that the crystal goblet can't make the wine any better than it is."

Architecture, like the crystal goblet, is still better than a plastic glass, or a mere brick box. A great work of architecture will still enrich the museumgoer's experience and provide some of the few opportunities for the general public to actually see high-quality, thought-provoking, or beautiful buildings. We think the variegated collection of museums on the following pages, most of which are art museums, do just this, but we make no guarantees that they are going to solve all the problems they are intended to.

Take, for example, Peter Cook's and Colin Fournier's Kunsthaus in Graz (page 92). You may ask how RECORD can give prominence to such a wild and crazy museum. (Because we can't resist its charms!) Admittedly, it is an exhibition hall for contemporary shows, and therefore not accountable for presenting a permanent collection. Nevertheless, Victoria Newhouse, who commends the Kunsthaus "for fitting wonderfully into the city fabric," finds the exhibition space problematic, especially on the second floor, where curatorial and fire concerns resulted in a very dark space without natural lighting. And, she notes, the stark, white, freestanding partitions for the temporary exhibitions are too distracting for the art, especially when seen against the steel mesh background.

We are showing other museums whose exhibition spaces may be flawed: the parking-garage look of the galleries in the Contemporary Art Museum St. Louis, designed by Brad Cloepfil of Allied Works (page 124), will need a lot of high octane art to rev them up. On the other hand, the Nasher Sculpture Center (page 100), by Renzo Piano, seems to offer a serene oasis among Dallas's high-rises, plus a remarkable integration of outside and inside spaces. In the case of the Mori Art Center in Tokyo (page 106), Gluckman Mayner dramatically separates the interior galleries from the perimeter walkway that provides a view of another artwork—the city. The Echigo-Matsunoyama Museum of Natural Science by Takaharu and Yui Tezuka (page 118) snakes through the land with a Cor-ten structure that generates an experiential, linear display space. The Museum of Earth in Ithaca, New York, by Weiss/Manfredi, also takes dramatic advantage of the site (page 112). Finally, there is the Mills Museum of the Balearic Islands in Palma, Majorca (page 130), where the Barcelona-based architects, Ricardo Flores and Eva Prats, have added concrete and stone accretions, impeccably sculpted and carved, to the interior and exterior of an old windmill. The result is a powerfully architectonic work, even if the architects lost control over the exhibition installation.

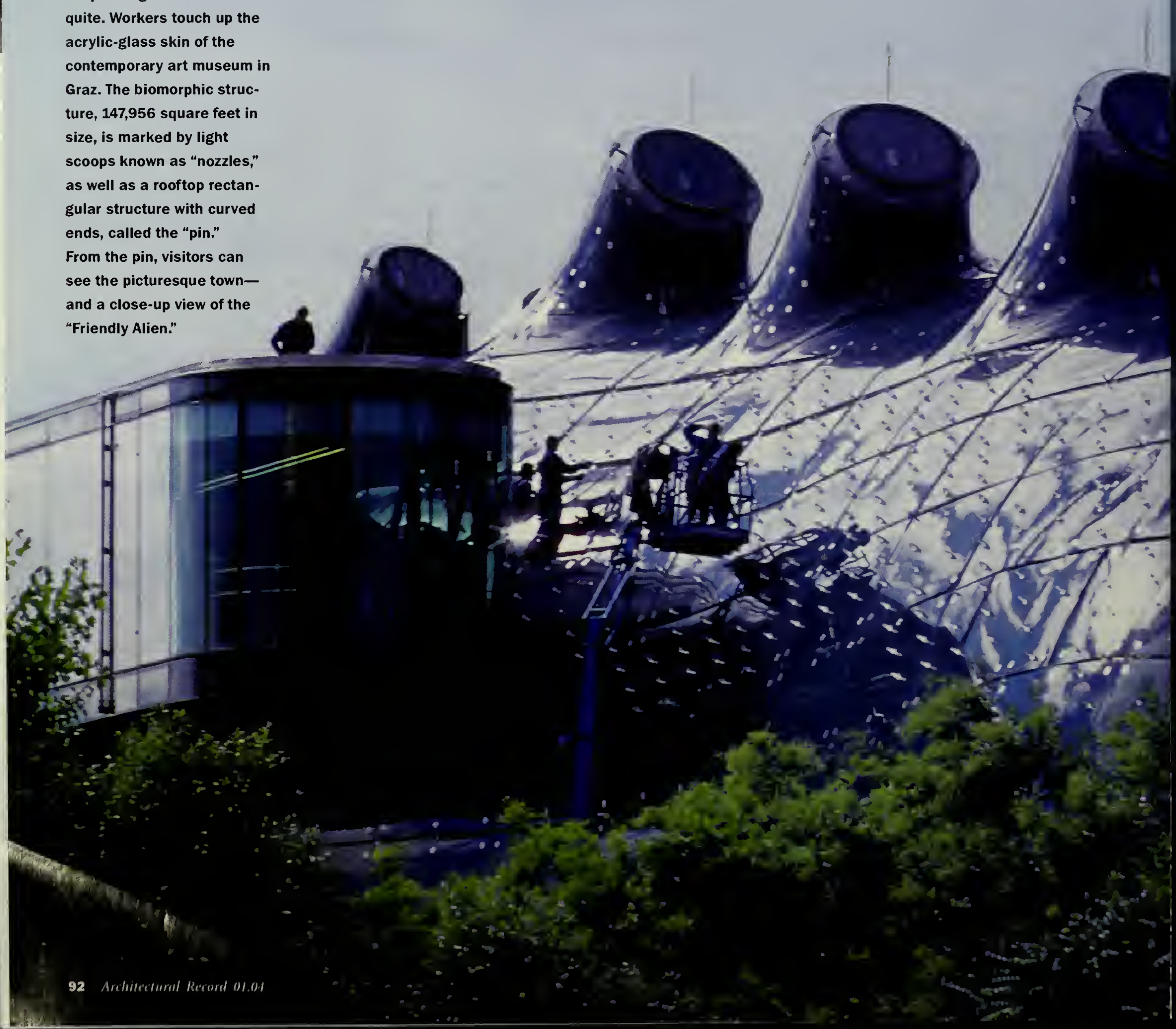
SEEING ART IN GREAT ARCHITECTURE IS LIKE DRINKING WINE OUT OF A CRYSTAL GOBLET, COMPARED TO A PLASTIC GLASS.

All of these architects have slaved away to create that crystal goblet. If it has some cracks, it does suggest that more needs to be thought out and confronted in interacting with the clients—the museum directors and trustees—whether they are sympathetic or dismissive, strong or weak. Carbone emphasizes that building the institution comes before the architecture. From his side, Lowry adds: "No work of architecture can be better than its client, no matter what the architect tells you. And if it doesn't meet the goals of the institution, it is not going to be a great building." ■

Seven different approaches: Kunsthaus Graz, Austria (1); Nasher Sculpture Center, Dallas (2); Mori Art Center, Tokyo (3); Museum of Earth, Ithaca, New York (4); Echigo-Matsunoyama Museum of Natural Science, Japan (5); Contemporary Art Museum St. Louis (6); Mills Museum of the Balearic Islands, Palma, Majorca (7).

Yikes! Peter **Cook's** and Colin **Fournier's** perkily animistic **KUNSTHAUS** in Graz recasts the identity of the museum and recalls a legendary design movement

Harpooning a whale? Not quite. Workers touch up the acrylic-glass skin of the contemporary art museum in Graz. The biomorphic structure, 147,956 square feet in size, is marked by light scoops known as "nozzles," as well as a rooftop rectangular structure with curved ends, called the "pin." From the pin, visitors can see the picturesque town—and a close-up view of the "Friendly Alien."



By Liane Lefaivre

Archigram is back, judging by the Kunsthaus, the museum in Graz that one of its founders, Peter Cook, has designed with Colin Fournier. If ever there was a movement that everyone dismissed as hopelessly utopian and absolutely unbuildable, it's the one initiated by Archigram in 1961. This is when Cook, with Warren Chalk, Ron Herron, Dennis Crompton, David Greene, and Michael Webb, got together at the Architectural Association in London. The group seemed about as close to the lunatic fringe of the pop phenomenon as one could get. As the Beatles of architecture, Archigram broke down the dreary conformity of the 1950s, sweeping aside sclerotic convention with their antics, and served up a madcap architectural cock-

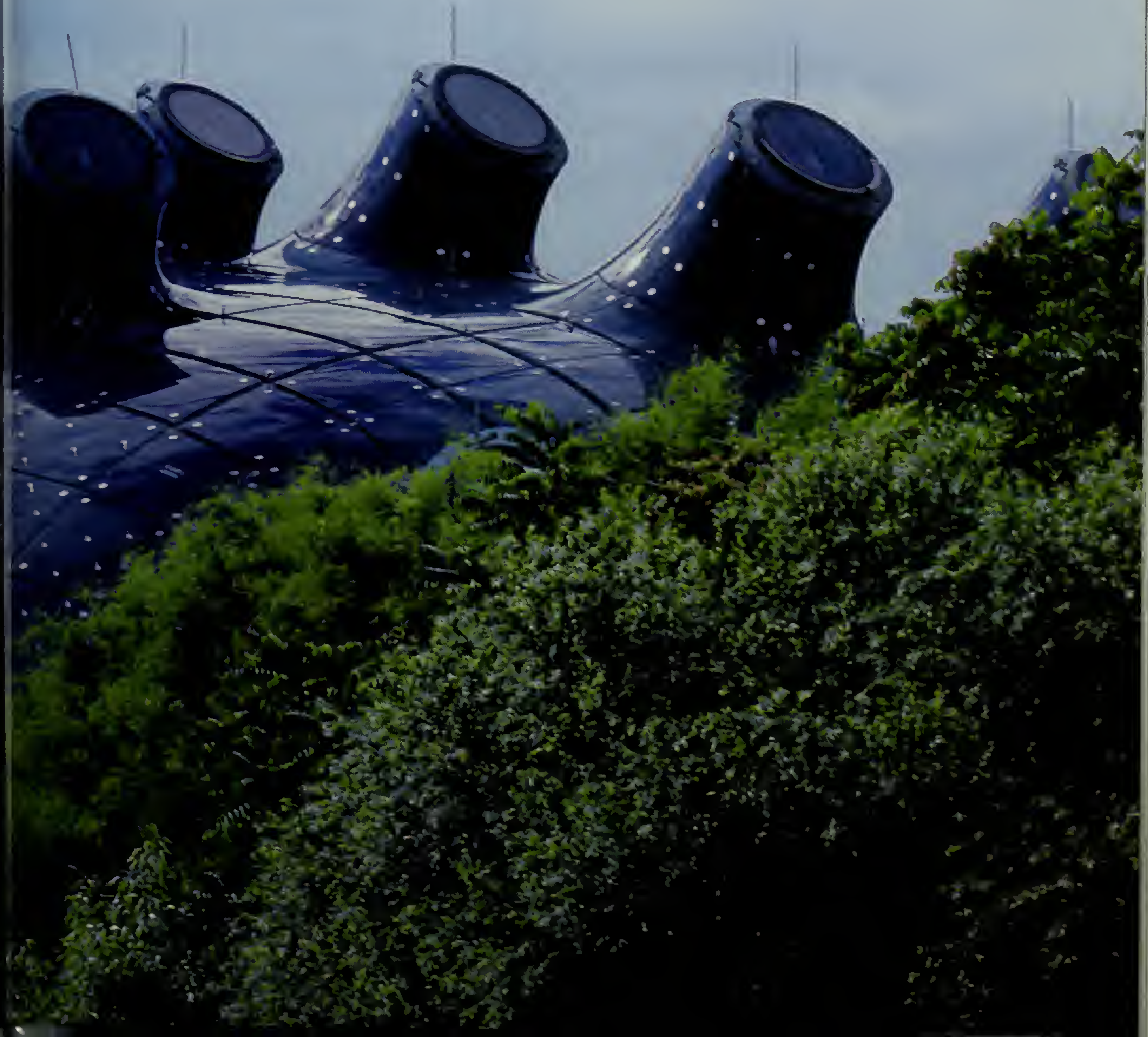
Liane Lefaivre is the chair of History and Theory of Architecture at the University of Applied Arts in Vienna. She is the coauthor, with Alexander Tzonis, of Critical Regionalism *(Prestel, 2003).*

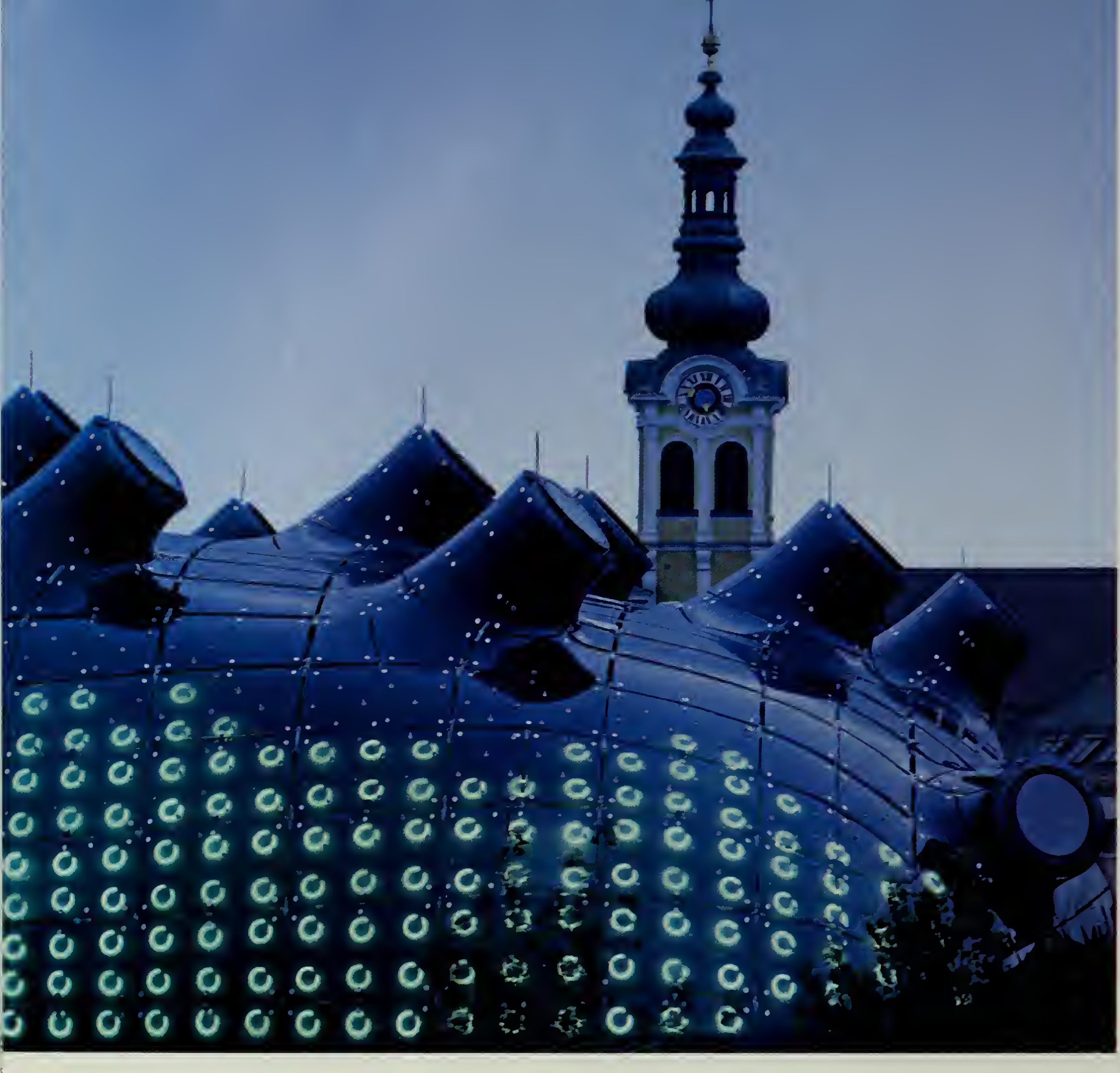
Project: *Kunsthaus Graz, Graz, Austria*

Owner: *City of Graz*

Architects and engineers: *ARGE Kunsthaus, a joint venture: Spacelab Cook-Fournier—Peter Cook and Colin Fournier, principals; Niels Jonkhans, design architect. Architektur Consult/Domenig, Eisenkock, Peyker—Herfried Peyker, partner in charge; Dietmar Ott, project manager. Bollinger+Grohmann (structural engineers)—Klaus Bollinger, partner in charge*

Digital designers: *Realities United*





The multisnouted blob, in which a double-curved, fluorescent-lit acrylic-glass structure is supported by a triangulated steel shell, strangely fits into the the picturesque gable- and tile-roofed city. The nozzles are directed north to bring natural light to the exhibition space within.

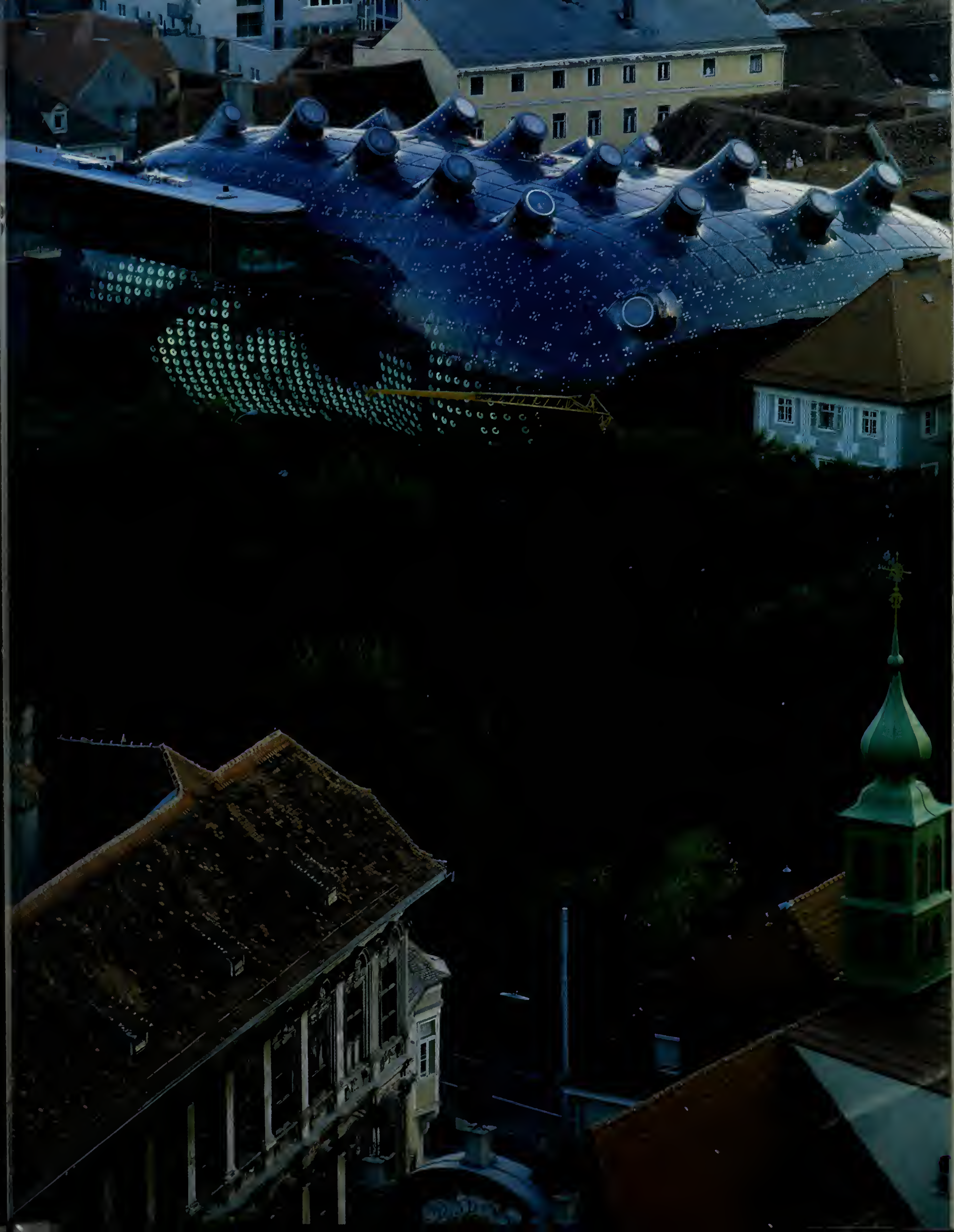
tail, mixing new information technology with Buck Rogers popular mechanics and imagery right out of Cape Canaveral.

It has taken 40 years, but now it seems the world has finally caught up with where Archigram's head was in the early 1960s. The Kunsthaus in Graz, which Cook and Fournier call the "Friendly Alien," came about when Cook, the chairman of the Bartlett School of Architecture at University College in London, and Fournier, a professor at Bartlett who had worked with Bernard Tschumi on Parc de la Villette in Paris, entered the Kunsthaus competition in 2000. Under the name Spacelab Cook-Fournier, they won the commission, forming a joint venture (called ARGE Kunsthaus) with two German firms, Architektur Consult and engineers Bollinger+Grohmann. With the museum's fall opening, Archigram's wildest flights of imagination have finally landed on Earth. And in the most unlikely place, too: Graz, almost three hours by train from Vienna, is one of the prettiest towns you'll ever see [for more on Graz, see RECORD, May 2003, page 123]. Literally popping out amid three- and four-story, 18th-century pastel-colored Baroque buildings straight from a Mozart opera, the new building is a whopper of a big, bright, blue bubble with a shiny, scaly, acrylic-glass skin that not only has a serious case of goose bumps but that flashes and glows in the dark.

You've just got to love it, nozzles and all. The people of Graz do. But then they're not boring, "cool" folk. One fall morning the place was just bursting with jovial people dressed up in their Sunday best Tyrolean hats with feathers or tassels, and boiled wool jackets. This is High Archigram—not a wimpy, fizzled out, aesthetically correct version of it. The nozzles, for example, are touted as devices for catching light, equipped as they are with electronically controlled louvers. They come with quirky, spiral-tube light fixtures, looking like fluorescent springs, for dark conditions. Functional though they may be, these protruding sci-fi windows are straight out of Ron Herron's series of drawings, *Walking Cities*, of 1963.

The rectilinear glazed shaft precariously cantilevered on top of the billowing form serves no purpose whatsoever from the curatorial point of view. But the "needle," as it's called, offers a sweeping panorama over the city. It is right out of the lookout atop Peter Cook's Montreal tower project of 1963.

And then there is the "pin," a travelator. Archigram's first magazine, dated "May 61," and only one page, had some declarations in verse about the terrible state of contemporary architecture, and some words in bubbles floating between the poems. *Flow* comes back several times on that cover. And *fun*. The pin is a particularly enjoyable way of flowing from the ground floor to the second and third floors. This innovative circulation



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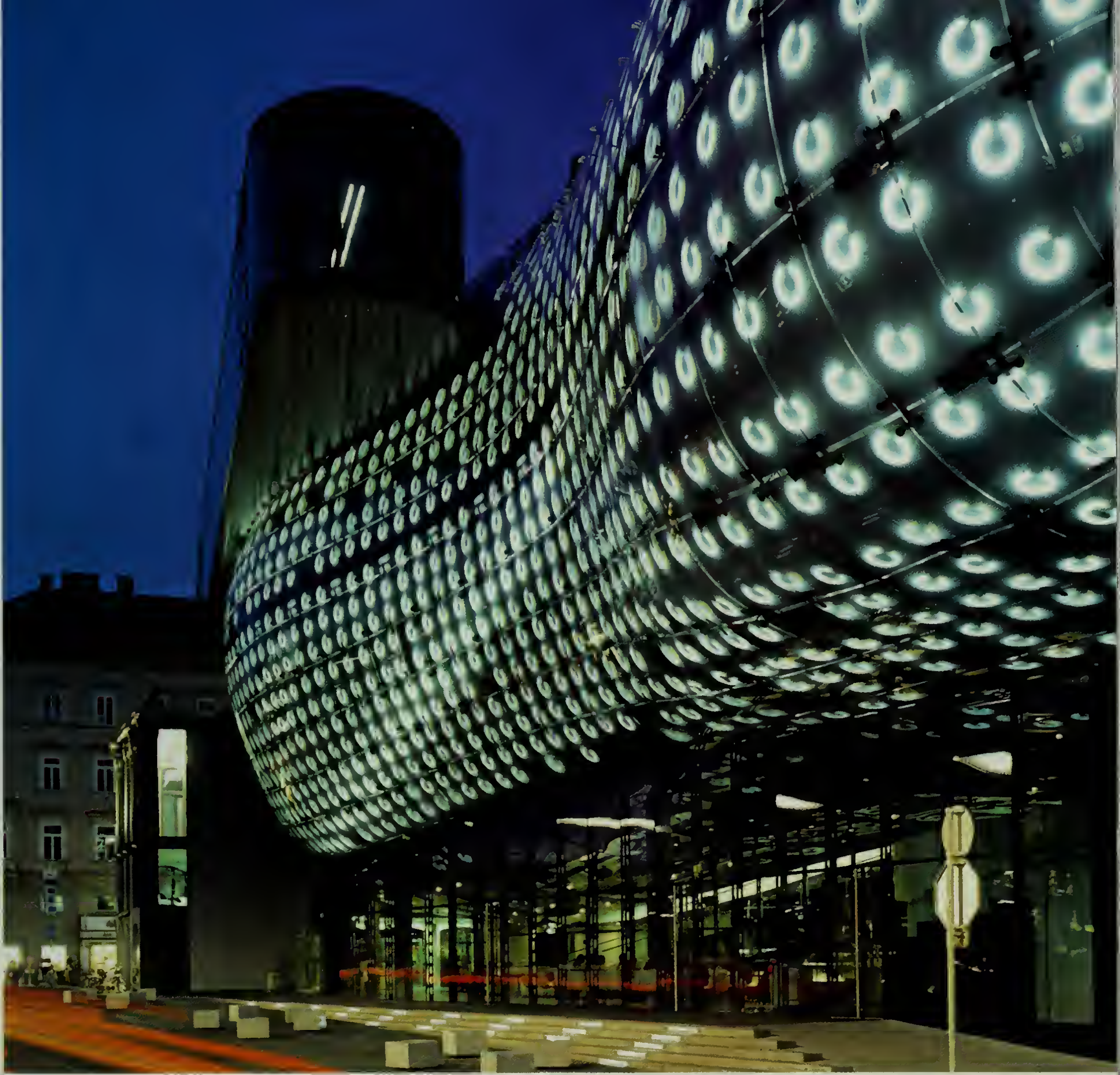


The $49 million Kunsthaus nestles in the city fabric like a playful sea creature washed up from the Mur River (right and opposite four). Bridges link it to the Eisernes Haus, a cast-iron structure opposite, top right), renovated as part of the project. The ground floor is glazed, while circular fluorescent tubes underneath the double-curved acrylic skin transform it into a low-resolution screen.

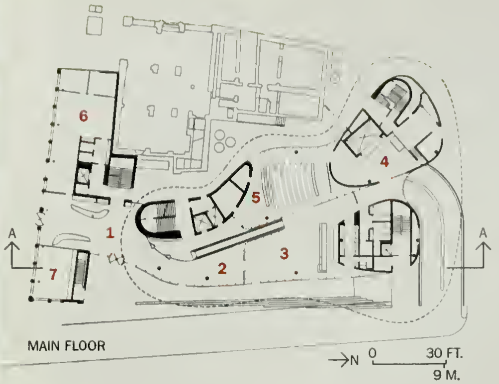
device is totally integrated into the exhibition space. It starts where Frank Lloyd Wright's Guggenheim Museum left off. Whereas Wright's circula-ion system was meant for paintings, this one is better adapted to ontemporary, large, multimedia installations, allowing them to be taken n from different angles. Thanks to the pin, in viewing the current show, *Perception*, which features paintings, sculptures, photographs, and installations, you feel as if you are slowly flying over the exhibition pieces. This sense of an overview is in the best Archigram tradition. At the same time, the travelator is a feature that the late Cedric Price, teacher and idol at the Architectural Association during Archigram's years, introduced in his un Palace project of 1961.

The translucent, blue, acrylic-glass skin is also textbook Archigram. In that first Archigram issue of 1961 are other little bubbles with the words *plastic* and *skin!*. Because the Kunsthaus's exterior is conceived of s a double-layered skin, it is also used for what the architects call Communicative Display," derived from the belief that the facade of the spectacular building should be a membrane hinting at activities within.

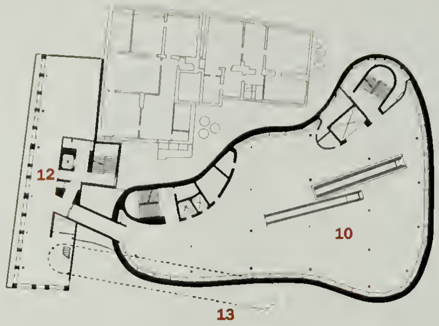
This digital display was carried out by Realities: United, a firm specializing in architectural lighting, directed by two brothers, Jan and Tim Edler, former students at the Bartlett. The system they developed for this project, called BIX (a cross between big and pixel), is a field of 925 standard, circular, fluorescent tubes placed under the outer skin of the building [RECORD, March 2003, page 177]. All the lights can be controlled individually with a computerized system, so not only can they be switched on and off, but their intensity can be changed at an infinite variability 18 times per second. In this way, the east facade of the Kunsthaus has been turned into about a 148-foot-wide and 66-foot-high, low-resolution "gray scale" display that is highly integrated into the complex, double-curved facade structure. Simple messages, animations, and film clips can appear and disappear within the skin.

True to the pop aesthetic, this skin looks like it must have cost a fortune: It did not. The materials involved—the acrylic-glass skin, the standard circular lighting features—make the whole enterprise exceptionally economical, according to Cook, as does the unadorned exposed concrete structure seen inside.

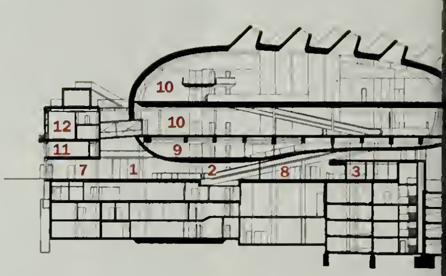
The building is just as friendly up close as it is from practically everywhere else it can be seen in the surroundings. Despite its gestalt from afar as an opaque structure, it is actually glazed at ground level, with total



MAIN FLOOR

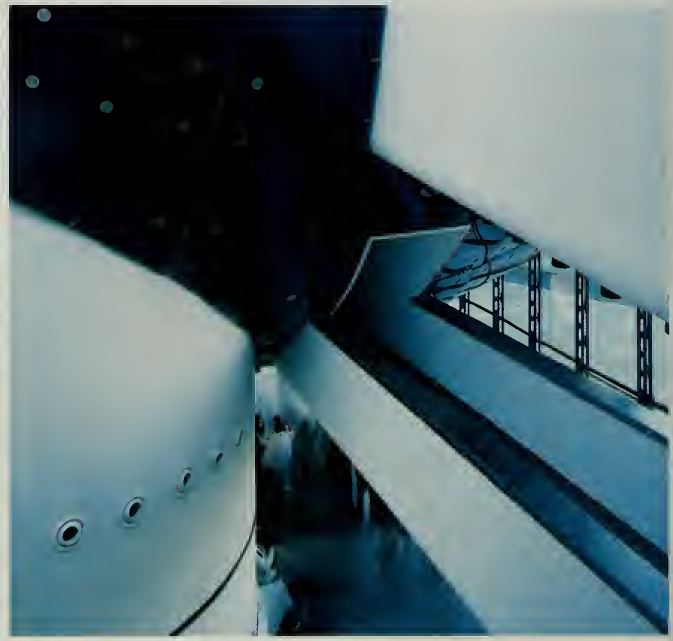


THIRD FLOOR



SECTION A-A

1. *Entrance foyer*
2. *Media lounge*
3. *Café*
4. *Delivery area*
5. *Multipurpose events*
6. *Medien Kunstlabor (art installations)*
7. *Shop*
8. *Lecture/performance*
9. *Children's area*
10. *Exhibition area*
11. *Administration*
12. Camera Austria *magazine*
13. *"Needle" events space*



visual contact between inside and out, and accessible from multiple entrances on both its street sides. For all its apparent zaniness, it is a serious, porous, urbane architectural creature.

Moreover, the Kunsthaus, according to Cook, was designed to relate to the specific site, occupied partially by the historic Eisernes Haus. The program called for integrating this 1852 structure—the first cast-iron building imported from Sheffield, England, into Austria—into the museum. In Cook's view, the English derivation makes it extremely germane to his own building—another equally high-tech experiment. Last but not least, it is successful as urban renewal. In what Cook describes as a run-down, red-light district, the Kunsthaus has now managed to stimulate the spread of cafés and restaurants.

This building is bound to become a classic, despite the fact that Archigram once tried to subvert the architectural canon. Ironically, it took 40 years for a utopian idea to become reality in architecture. But perhaps the ultimate reason for its appeal is that it comes from a time when a ludic, optimistic mood characterized our culture. Precisely because it is an anachronistic creation of early 1960s' cultural optimism in a world now so terribly different, it is arresting and strangely moving. ■

A travelator virtually sucks visitors up from the street-floor lobby and bar (above left) to the exhibition areas on the upper levels (above). On the street floor of Eisernes Haus (left) is the Medien Kunstlabor space for art installations. Shown here is a piece by Franz Xaver.

Sources

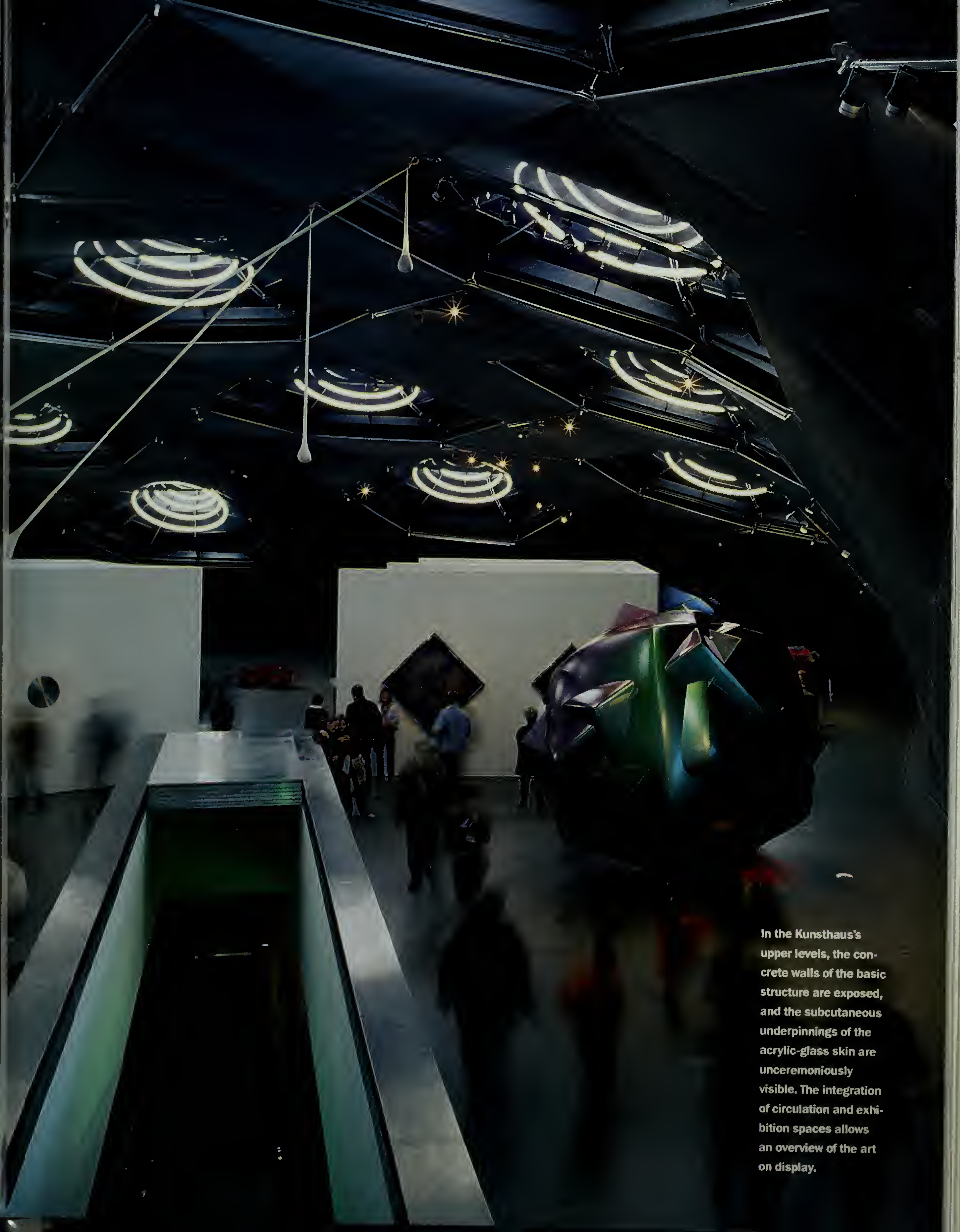
Double-curved acrylic-glass panels: *Zeiler GmbH*

Steel construction of bubble and metal-and-glass curtain wall: *SFL*

Steel-framed glazing: *SFL; Morocutti; Heidenbauer*

Concrete: *Steinerbau*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

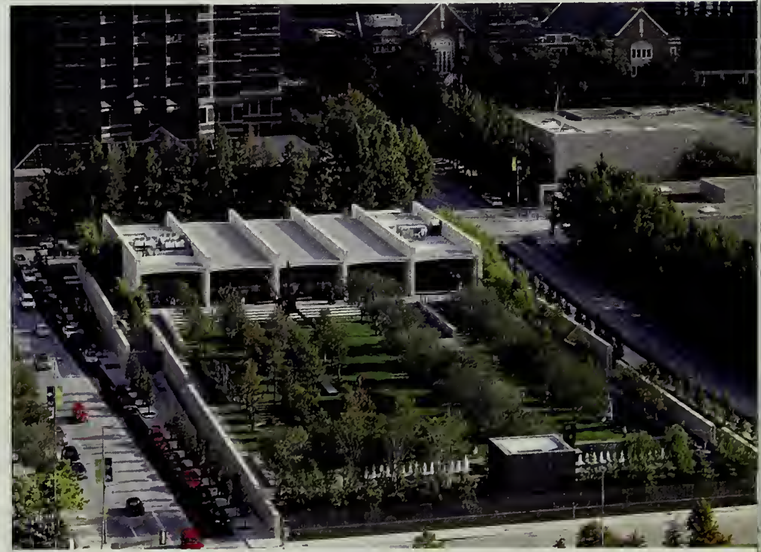


In the Kunsthaus's upper levels, the concrete walls of the basic structure are exposed, and the subcutaneous underpinnings of the acrylic-glass skin are unceremoniously visible. The integration of circulation and exhibition spaces allows an overview of the art on display.

The building and sculpture garden stand amid skyscrapers (opposite, top and bottom). The exterior travertine cladding is mottled, evoking an ancient ruin (this page).

Renzo **Piano** creates an oasis in downtown Dallas, the **NASHER SCULPTURE CENTER**, a building of lapidary precision in a lush garden

By David Dillon



Renzo Piano is holding a creased photograph of an ancient Roman ruin, its stone walls poking through the earth to suggest rooms and public spaces: Here, he explains, lies the conceptual starting point for his Nasher Sculpture Center. "We wanted to make something that's about the day-to-day life of the city, yet also outside of time. Absurd really, this idea of a noble ruin in the middle of a busy downtown, but that's what makes it powerful."

The recently completed Nasher Center covers 2.4 acres in the heart of Dallas's Arts District, across the street from Edward Larrabee Barnes's Museum of Art and a block from I.M. Pei's Meyerson Symphony Center. Within its rough travertine walls resides one of the world's great private collections of Modern sculpture—more than 350 pieces ranging from a small plaster model of Rodin's *The Age of Bronze* to monumental steel works by Richard Serra and Mark di Suvero. The collection, valued conservatively at $500 million, was stalked by a dozen major museums, including the National Gallery of Art, Guggenheim, and Tate, until Raymond Nasher decided to keep it in the city where he'd made his fortune as a shopping center developer—and foot the project's $70 million bill himself.

He says he chose Renzo Piano for the architect's understanding of art, as well as materials and construction. Right on all counts. The center synthesizes art, architecture, and engineering, replacing bold form with the subtler pleasures of light, texture, and proportion. A building of lapidary precision, it represents Piano at his most self-effacing and exacting. Every minute detail, from arcing vaults to stone joints, has been thought through. Only the large gallery windows seem conventional, more akin to a fancy department store than a museum.

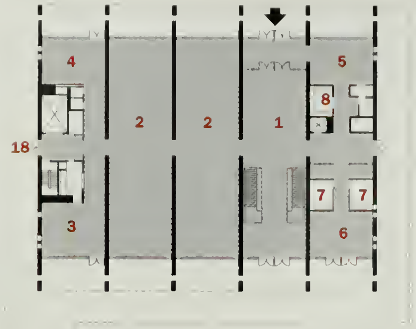
The Nasher Center is an essay in what Italians call *sprezzatura*, the art that conceals art. Ducts, cables, and sophisticated electronic gear lie crammed within its thin travertine walls, but nothing shows. The aluminum sunscreens are technical tours de force with the simplicity of egg cartons. The granite benches in the garden conceal pumps and electrical boxes; even the loading dock is tucked out of sight, as if trash collection were a purely hypothetical activity.

The plan of the building, a 55,000-square-foot pavilion, is simplicity itself: five vaulted bays, three housing art and one each for a restaurant and museum shop. The lower level contains a library and additional galleries, as well as an auditorium opening onto the garden. On the exterior, the travertine looks weathered and mottled, as if it had just come from the quarry, while on the interior, its polished, mitered surfaces, reminiscent of fine cabinetry, quietly complement the art. White oak floors, creamy travertine, silvery aluminum, and "extra-white" glass form the entire palette: No bright colors,

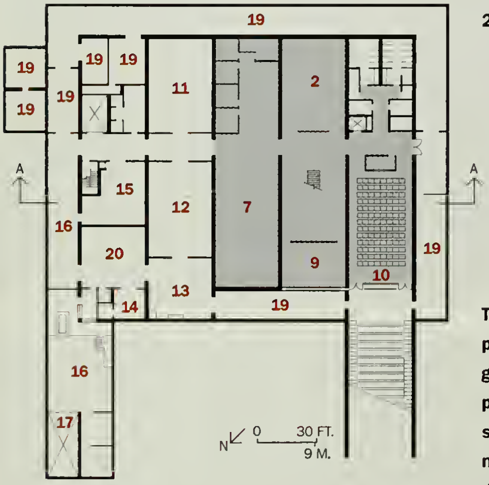
David Dillon is a contributing editor to ARCHITECTURAL RECORD *and the architecture critic for* The Dallas Morning News.

Project: *Nasher Sculpture Center, Dallas, Texas*
Architect: *Renzo Piano Building Workshop—R. Piano, E. Baglietto, B. Terpeluk, S. Ishida, B. Bauer, L. Pelleriti, S. Scarabicchi, A. Symietz, E. Trezzani, G. Langasco, Y. Kashiwagi; F. Capellini, S. Rossi, project team*
Associate architects: *Beck Architecture; Interloop A/D*
Engineers: *Arup (design of structural and m/e/p); Halff (civil); Datum (structural); Arjol (m/e/p)*
Landscape architect: *Peter Walker*

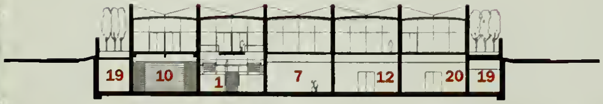
Though the building's scale is relatively modest, the sculpture garden (this page and opposite) occupies much of the 2.4-acre site, allowing for gracious allées with lawns, fountains, reflecting pools, and space to pause between sculptures. The world-class collection of Modern works belonged to Raymond Nasher and his late wife, Patsy.



ENTRY LEVEL



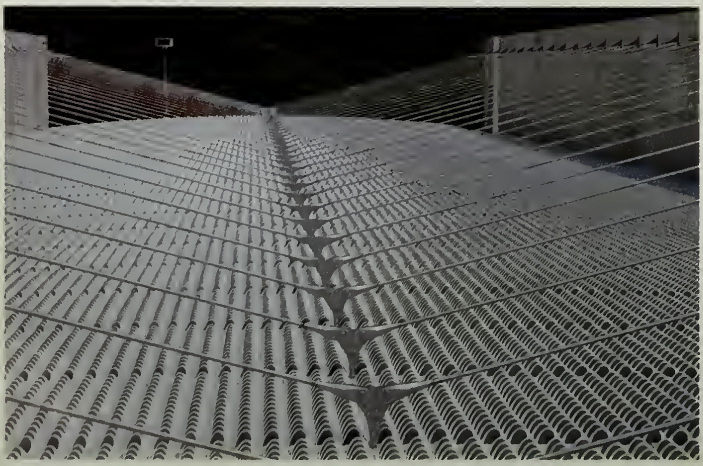
LOWER LEVEL



SECTION A-A

1. *Main entry hall*
2. *Art gallery*
3. *Café*
4. *Multipurpose*
5. *Gift shop*
6. *Boardroom*
7. *Offices*
8. *Coats*
9. *Classroom*
10. *Auditorium*
11. *General storage*
12. *Art storage*
13. *Conservation*
14. *Workshop*
15. *Kitchen*
16. *Loading*
17. *Truck lift*
18. *Secondary entrance*
19. *Mechanical*
20. *Staging*

The roof has 256 panels of extra-white glass and 44 steel panels. Aluminum sunscreens face due north, shading all direct rays (below).



sharp contrasts, or, conversely, bland uniformity.

Light is the Nasher's soul, and the aluminum sunscreens designed with Arup, its technological high point. The client challenged his architects to come up with new ways of bringing daylight into the galleries without resorting to the massive concrete louvers that Piano had used at the Menil Collection or the intricately layered sunscreens of his Cy Twombly Gallery, both in Houston, and his Beyeler Foundation in Basel, Switzerland. At the Nasher, cast-aluminum sunscreens cut into 4-foot-by-6-inch lengths with roughly 500,000 oval scoops rest on a curved glass roof. Oriented due north, the scoops eliminate direct rays and harsh shadows. From one direction, all you see is sky; from another, a finely textured metal surface. Steel cables of nautical delicacy suspend the bowed glazing overhead. Design and fabrication took three years and were clearly worth it.

From the beginning, Mr. Nasher insisted the landscape was as important as the building. He got what he wanted. As refined as the pavilion, the 1.5-acre garden by landscape architect Peter Walker extends its thin travertine walls amid soldierly rows of native live oaks and cedar elms, terminating in James Turrell's *Tending Blue* light installation (housed in a structure by Interloop A/D). Oaks at the lawn's center will gradually create canopies over the walkways. Deciduous cedar elms will eventually soar to 60 or 70 feet, screening the garden edges while letting in low winter rays.

Like everything else at the Nasher Center, the garden underwent numerous revisions. It started out as a Romantic, somewhat English space with grassy mounds, shady groves, and loose serpentine edges—similar to the landscape at Mr. Nasher's North Dallas home. But once he decided to move his collection downtown, the garden became more open and rectilinear—better suited to Piano's understated building and its tight urban site. By all accounts, the collaboration between Walker and Piano was rocky. By the end, they weren't allowed on the site at the same time.

But ultimately, simplicity and compromise won. A gently sloping path leads from the terrace, through an enfilade of trees, to pools and fountains at the foot of the garden. As in the galleries, the color range here is extremely limited: Nothing grand or showy to compete with the sculpture. The long vistas from the pavilion are straight and unobstructed, but the side-to-side views become mysterious and surprising. Here, trees and hedges partially obscure the artworks—sometimes you see, say, only the top of a Di Suvero or a corner of a Lichtenstein. Yet unlike such recent sculpture gardens as the National Gallery's in D.C., the Nasher is not jam-packed like a supermarket. Its architects left plenty of room to pause and reflect.

The Nasher Sculpture Center has raised hopes of finally landing Dallas on the international cultural map. Gehry's Guggenheim did it for Bilbao, and Louis Kahn's great Kimbell Art Museum more modestly transformed Fort Worth (Dallas's neighbor). It's always a long shot. In the meantime, the locals, many of whom had given up on finding anything exciting downtown, are flocking to the Nasher. From one perspective, it provides a refuge from the city, a green space apart, where the air seems fresher and the roar of traffic momentarily silenced. From another, it represents a heightening and intensification of urban life. The garden walls frame the downtown skyline, making it look recomposed—better than it really is. The garden elements and the museum itself do what architecture is supposed to do—change our perceptions of place and space, forcing us to take a second look. ■

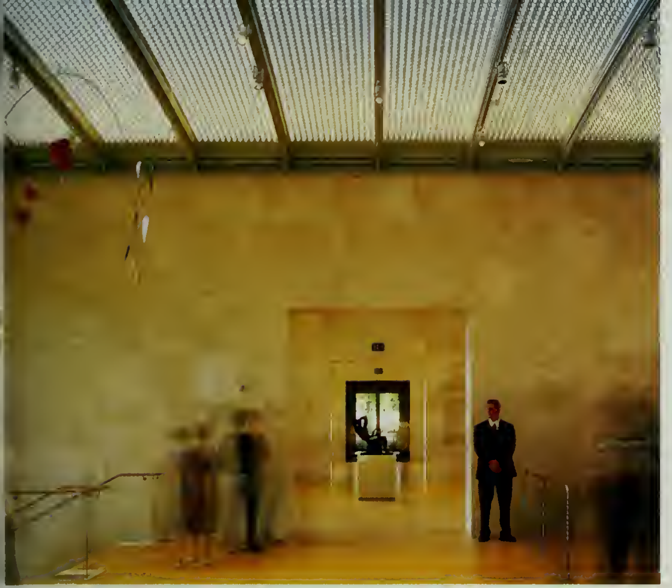
Sources

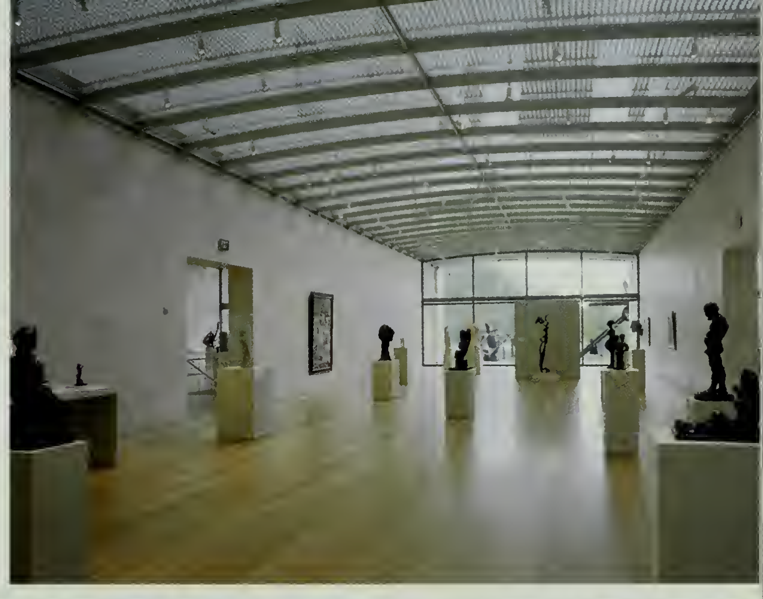
Roof glazing systems: *Sunglass*

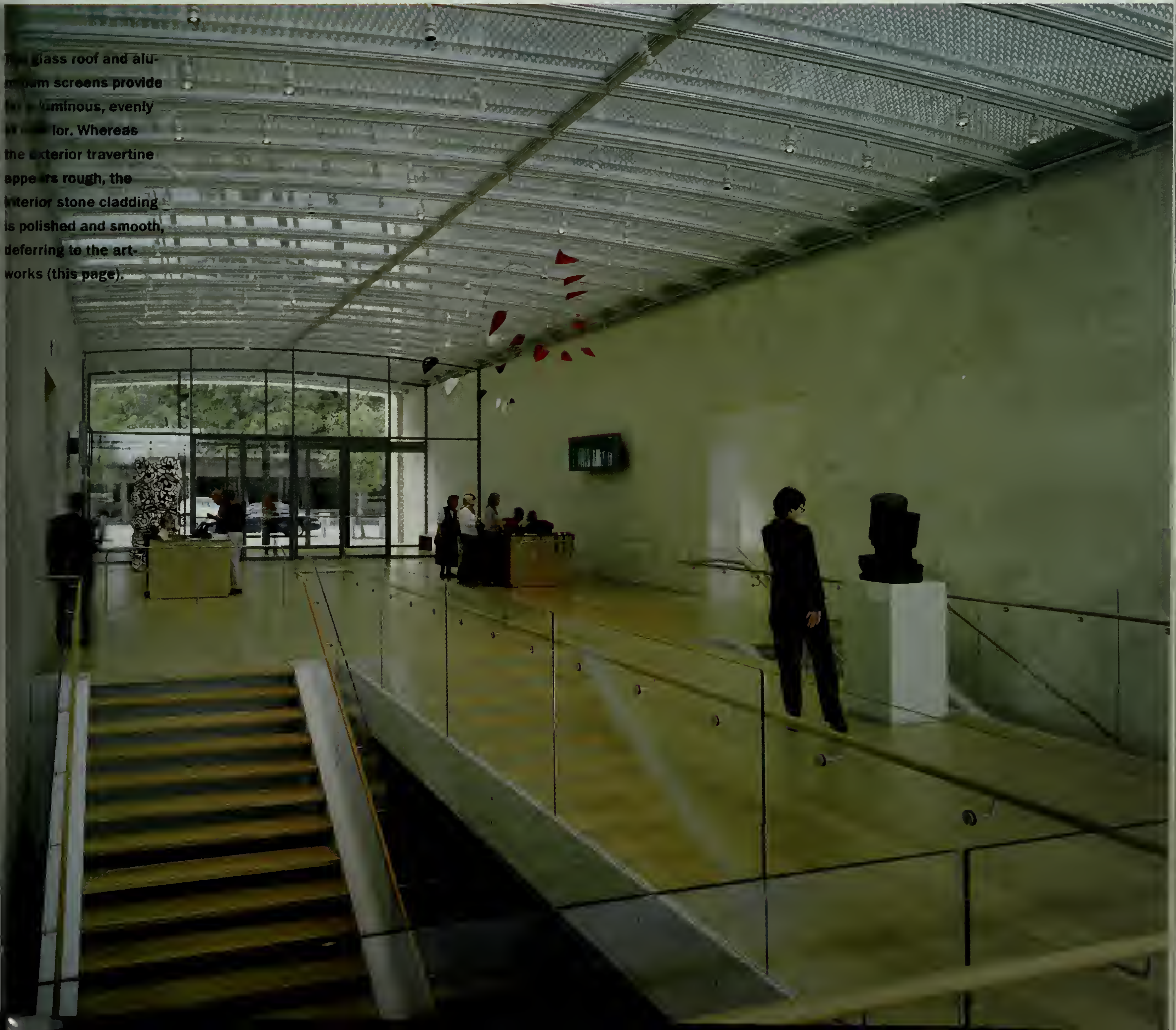
Aluminum sunscreens: *La Societa Sider*

Structural steel: *Gipponi*

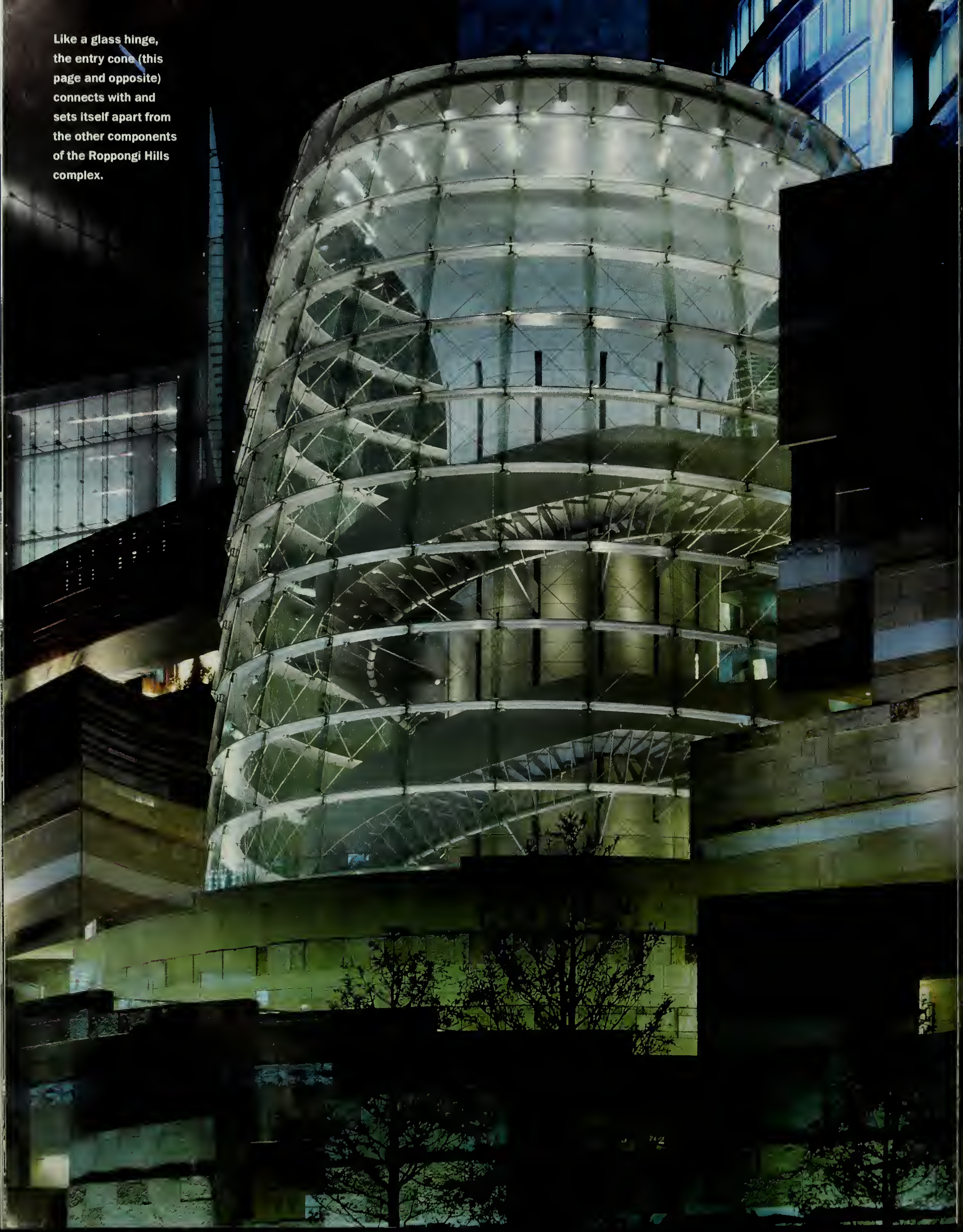
For more information on this project, go to Projects at **www.architecturalrecord.com.**





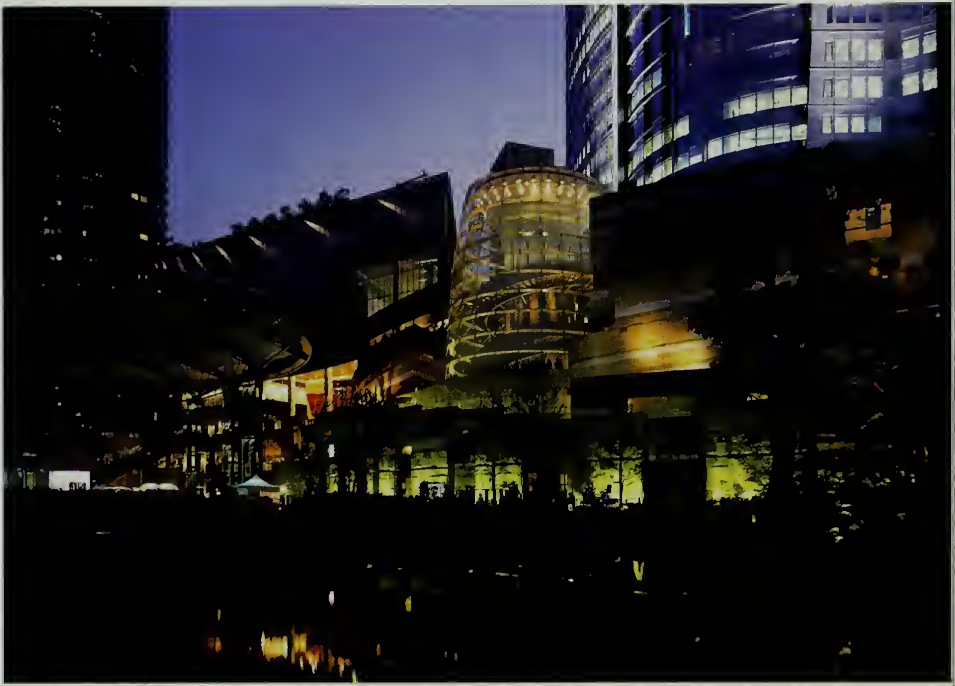


The glass roof and aluminum screens provide for a luminous, evenly lit interior. Whereas the exterior travertine appears rough, the interior stone cladding is polished and smooth, deferring to the artworks (this page).



Like a glass hinge, the entry cone (this page and opposite) connects with and sets itself apart from the other components of the Roppongi Hills complex.

Gluckman Mayner connects high culture with commercial development at the new **MORI ART CENTER** in Tokyo



ly Clifford A. Pearson

How do you create a distinct identity for a museum tucked inside a 54-story office tower? How do you even call attention to such a cultural facility when it is but one mall piece of a $2.5 billion development that ncludes 220 shops, 840 units of housing, a nine-creen multiplex cinema, a 380-room luxury hotel, a apanese garden, and an 800,000-square-foot roadcasting center, in addition to the 4-million-quare-foot office tower in which it resides? Those ere two of the challenges facing Richard Gluckman, AIA, as he designed the 100,000-square-foot Mori rt Center at Roppongi Hills in Tokyo.

Like a diminutive cherry sitting atop a igh-calorie architectural sundae, the museum ccupies the 52nd and 53rd floors of Roppongi ills' bulging office tower, the centerpiece of a 28-cre development whipped up by an eclectic band of design chefs—Kohn edersen Fox (KPF) (master plan and office tower), Jon Jerde (retail com-lex), Terence Conran (apartment towers), and Fumihiko Maki (broadcast enter). Some observers have criticized Roppongi Hills for being too big—ven for Tokyo's dense and chaotic urban fabric—but it has been a mashing success with the public. According to the Mori Building ompany, the project's developer, 26 million people visited the mixed-use omplex in the six-month period after it opened last May. In comparison, okyo Disneyland will attract about 25 million for the entire year.

"We needed an iconic element to identify the cultural component f the plan," states Gluckman. So his team at Gluckman Mayner Architects orked with structural engineers Yoshinori Nito + Dewhurst Macfarlane nd Partners to design a 100-foot-high entry pavilion at the base of the ffice tower that grabs attention with a 60-foot-tall, shingled-glass cone. he pavilion takes visitors from the vehicular drop-off and shopping-plaza evels at the base of the complex, up three-to-five floors to a 70-foot-long ridge that leads into the Mori office tower. Once inside the office building, isitors can get information about the museum, then catch express eleva-rs to the 52nd floor, where the museum proper begins. Dedicated to odern art starting from the mid-20th century, the museum has an inter-ational focus and a special emphasis on the work of Asian artists.

Emerging from Jerde's stone-clad shopping center and sitting in front of KPF's steel-frame office building, Gluckman's glass cone asserts its own style: crisply tailored Modernism with touches of technological daring. During the day, it offers views of the 17th-century-style Japanese garden just to the east, and at night it glows like a lantern. In its center, a concrete-clad funnel structure contains elevators and provides the building's main vertical support. Canted glass rectangles swirling around the core, however, deliver the necessary razzle-dazzle. Like a giant hoopskirt, the lightweight glass-and-steel facade is held in place by a diagonal net of three-quarter-inch cables that suspend and stabilize nine-tenth-inch

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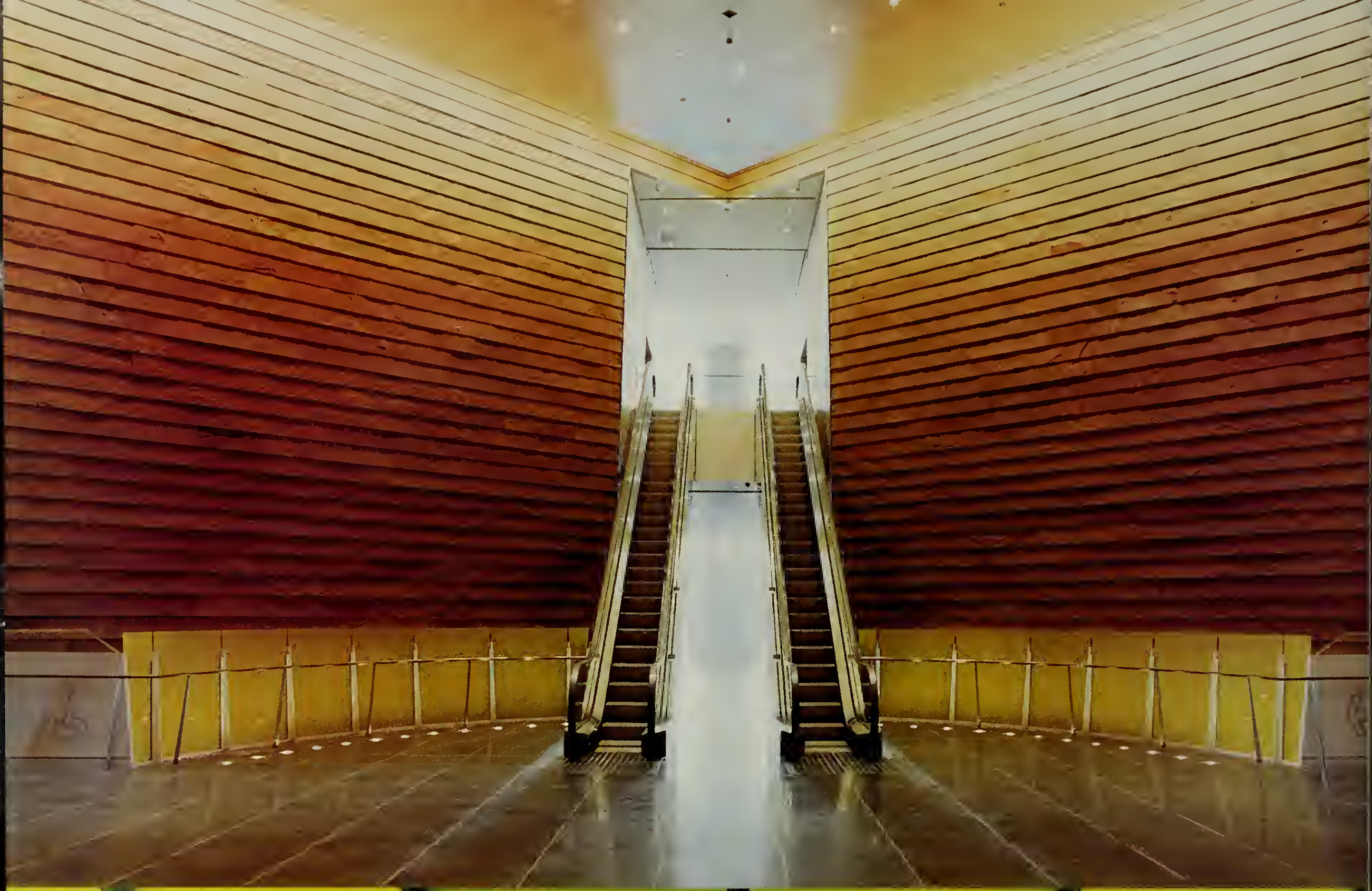
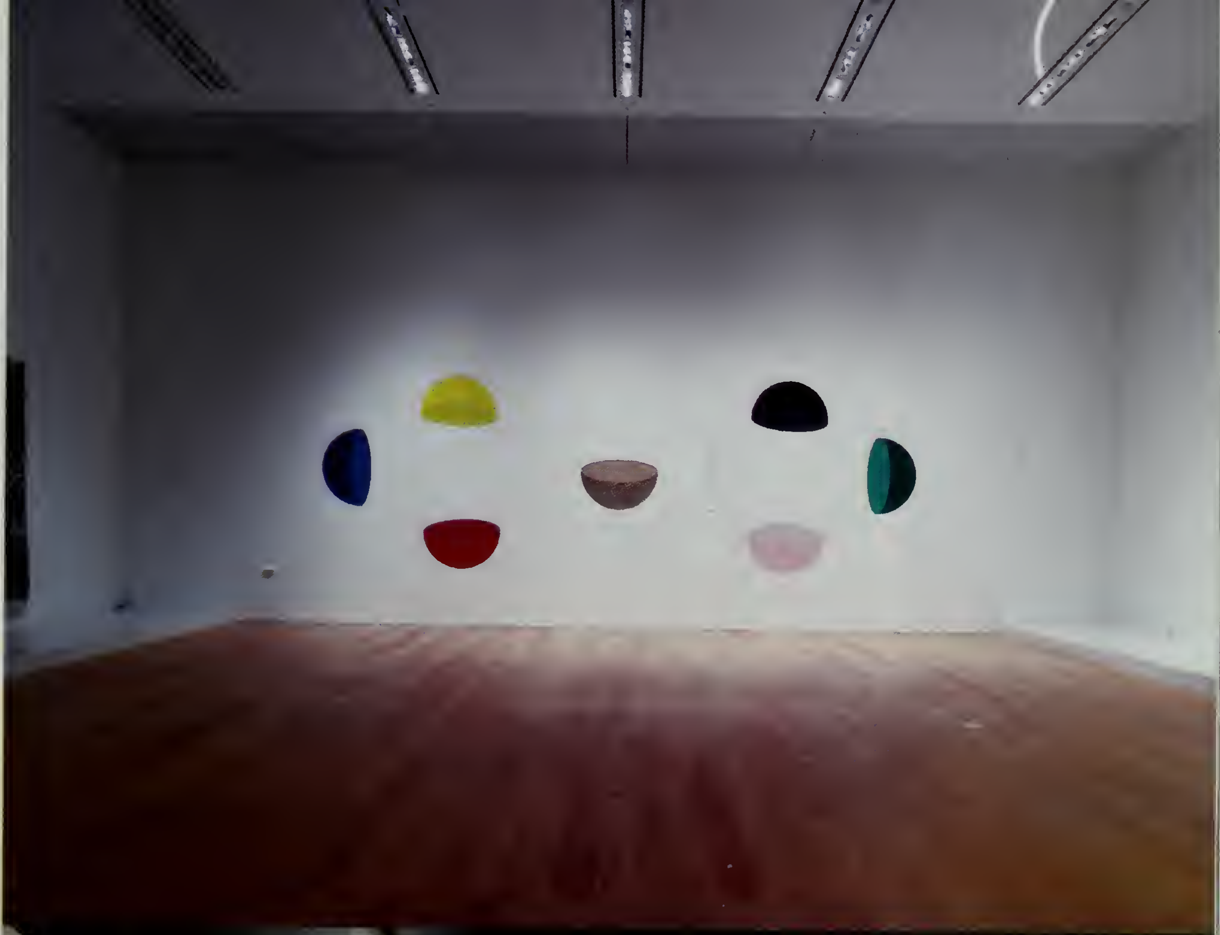
Project: *Mori Arts Center, Tokyo*
Architect: *Gluckman Mayner Architects—Richard Gluckman, FAIA, principal in charge; Sam Brown, Dana Tang, project architects; Anya Bokov, Eric Chang, Celia Chiang, Mark Fiedler, Carolyn Foug, Bobby Han, Alex Hurst, Julie Moskovitz, Taro Narahara, Jasmit Rangr, Kaori Sato, Suzanne Song, Esther Tsoi, project team*
Local architect: *Irie Miyake Architects & Engineers*
Engineers: *Yoshinori Nito, Yumi Fujikawa + Dewhurst Macfarlane and Partners, Kozo Keikaku (structural); Altieri Sebor Wieber, Kenchiku Setsubi (mechanical)*
Consultants: *Shozo Toyohisa and Kilt Planning (lighting); 2x4 (graphics)*
General contractor: *Obayashi, Kajima (joint venture)*
Prime contractor (glass cone): *Asahi Glass Building Component Engineering Company*

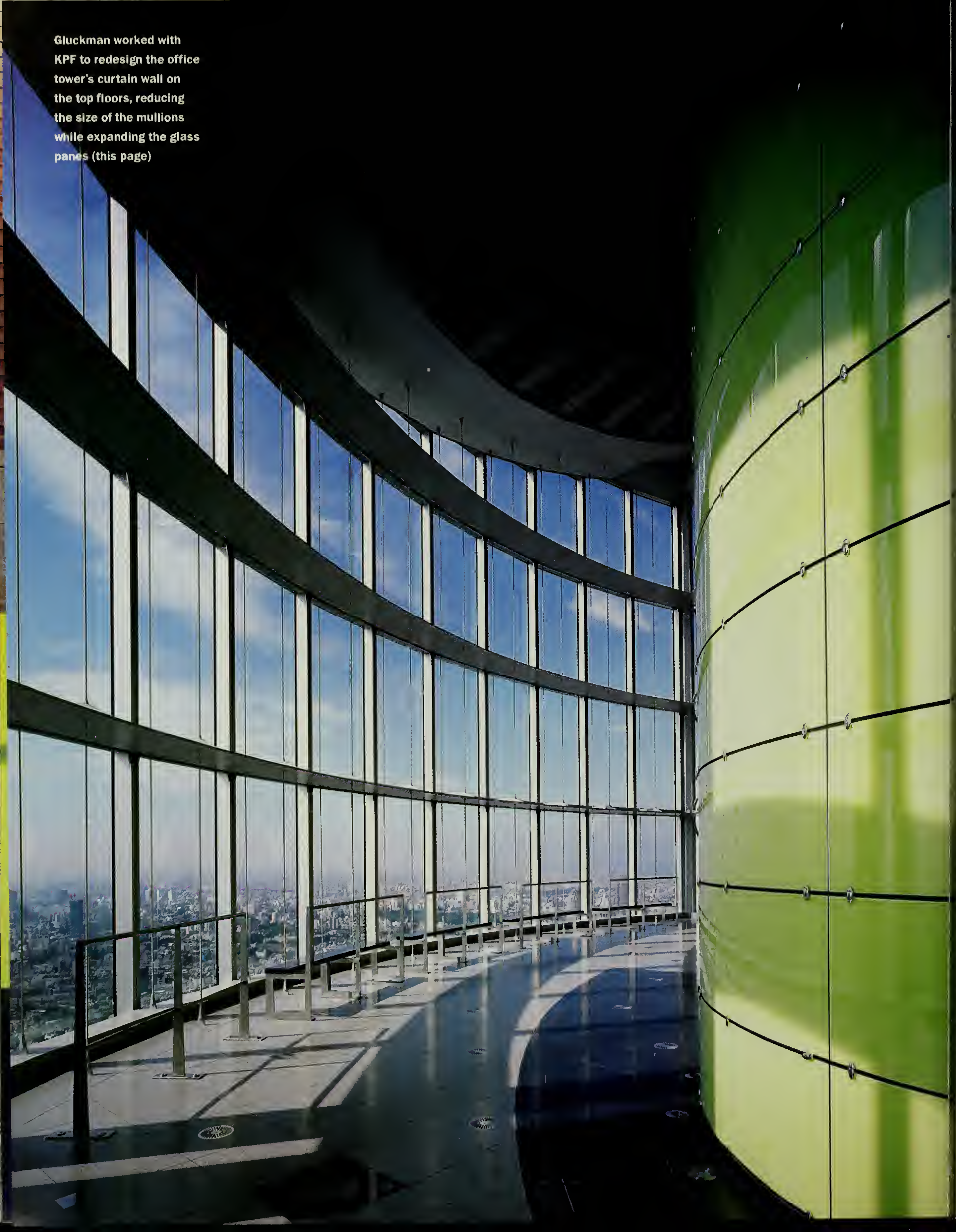


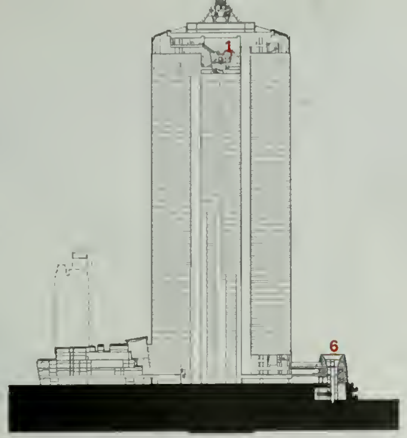
EXIT 出口
MUSEUM SHOP
ミュージアムショップ
出口
EXIT
MUSEUM SHOP

A central atrium con-
nects the two museum
floors (opposite, top)
and a floor below that
ouses a membership
lub (opposite, bottom).
he museum exhibits
odern art in 32,000
quare feet of galleries
this page, top and bot-
om). Gluckman used
uiet materials such
s light maple flooring
nd painted gypsum
oard in the galleries
o the setting wouldn't
verpower the art.



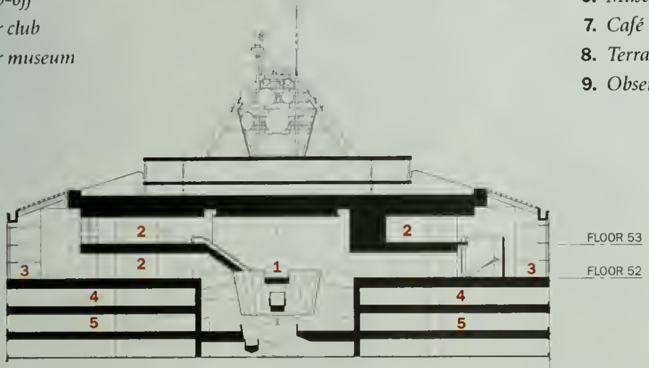
Gluckman worked with KPF to redesign the office tower's curtain wall on the top floors, reducing the size of the mullions while expanding the glass panes (this page)



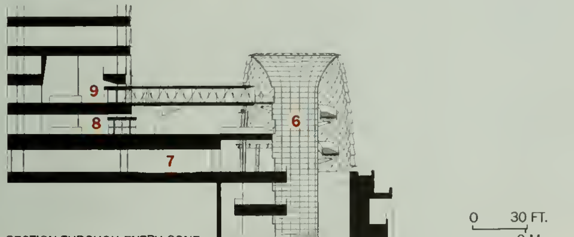


SECTION A-A

. *Atrium*
. *Gallery*
. *Observation*
. *Membership club*
. *Offices*
. *Entry cone*
. *Taxi drop-off*
. *Lobby for club*
. *Lobby for museum*

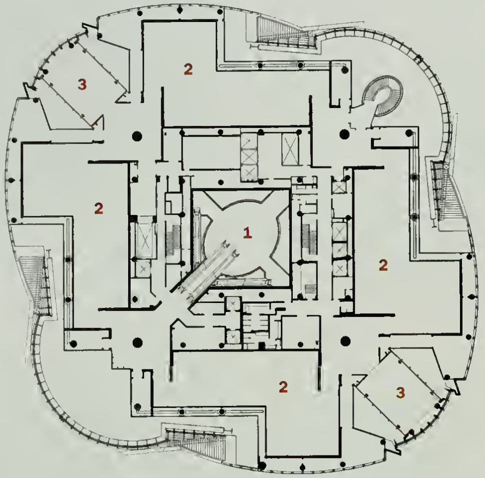


SECTION THROUGH MUSEUM

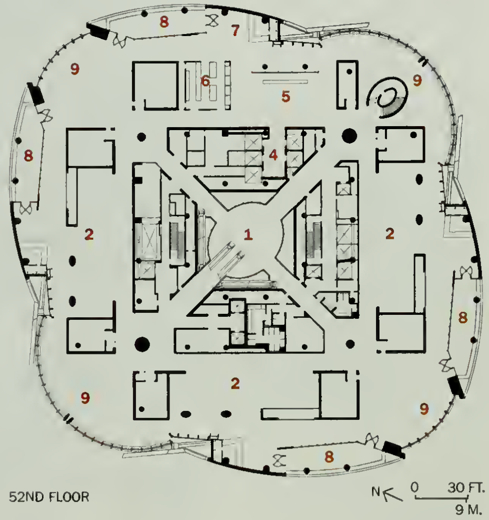


SECTION THROUGH ENTRY CONE

1. *Atrium*
2. *Gallery*
3. *Art and technology gallery*
4. *Elevator lobby*
5. *Arrival lobby*
6. *Museum shop*
7. *Café*
8. *Terrace*
9. *Observation*



53RD FLOOR



52ND FLOOR

orizontal steel rings. Glass shingles printed with a translucent ceramic rit rest on the elliptical conical structure, overlapping each other and roviding an enclosed but not completely sealed environment. A coninuous spiral stair animates the space between the core and the facade.

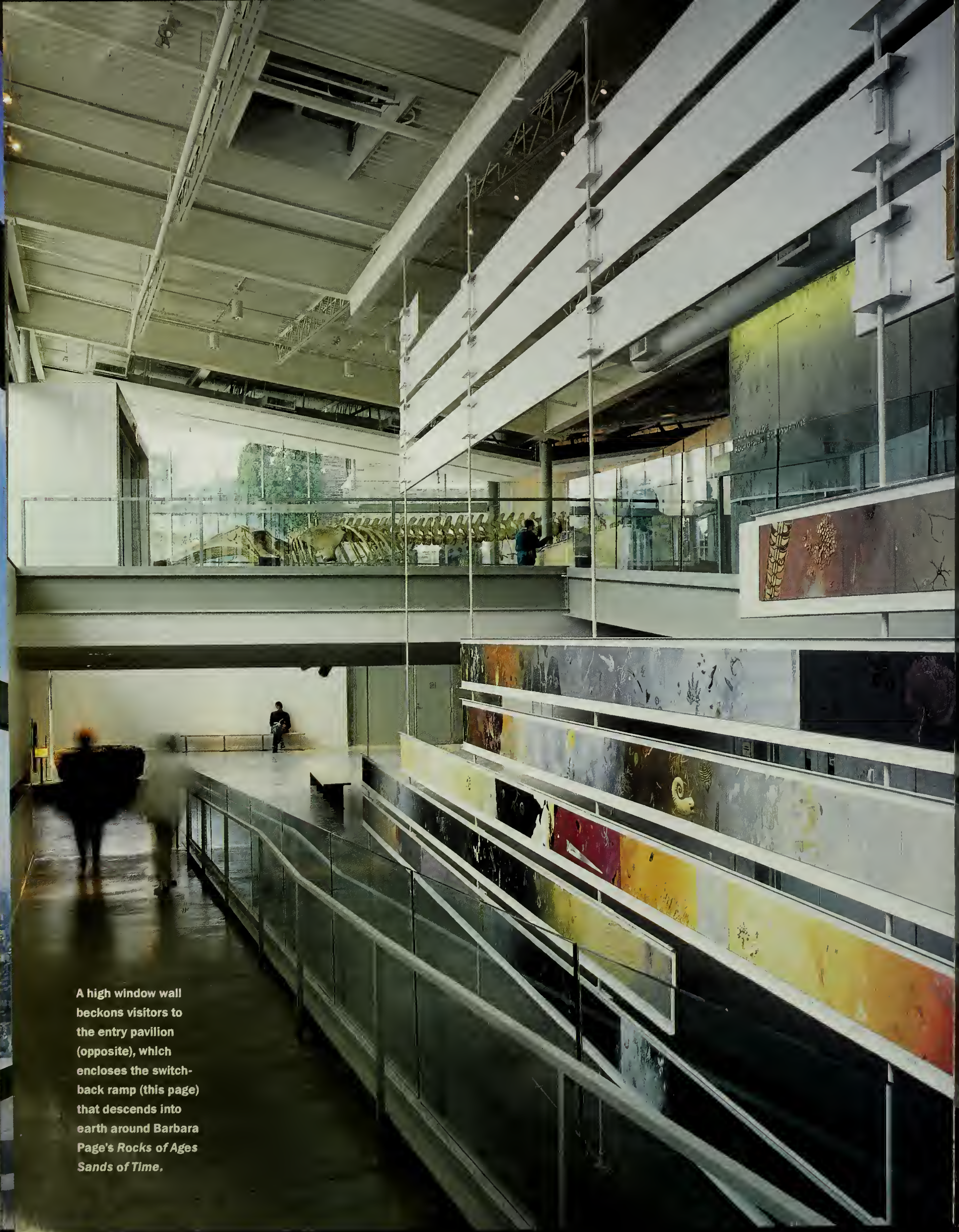
Known originally for the art galleries he sensitively inserted ithin 19th-century buildings in New York City, Gluckman took a more ssertive approach here at the Mori museum. Although the 35,000 square et of display spaces on two floors occupy clean, orthogonal galleries that on't distract from the art, the museum's public areas use bold colors and triking materials to set themselves apart from the rest of the office tower. or example, a 63-foot-high central atrium stands out with its impressive alls of roughly cut red Indian sandstone, while circulation spaces mploy thin planes of brightly colored glass that tease the eye. Such musular gestures were necessary to help orient large numbers of visitors, any of whom arrive on the 52nd floor looking for Tokyo City View, the bservation deck that surrounds the museum on all sides.

Orchestrating the procession of spaces—from entry pavilion rough two floors of galleries—was critical to the success of the useum, says Gluckman. After arriving on the 52nd floor, visitors can go the three side-lit galleries on this level or move up the escalator in the entral atrium to the top-lit main galleries on the 53rd floor. While he designed the L-shaped main galleries as quiet spaces with maple floors, Gluckman also created a pair of translucent glass boxes at opposite corners of the floor—twin spaces for the display of new-media art. These "art and technology galleries" penetrate the two-story-high space of the observation deck, stretching the visual reach of the museum to the surrounding city and providing the opportunity for curators to find innovative ways of projecting new media on the building's curtain wall.

To create the right context for the museum, Gluckman worked with KPF to redesign the office building's curtain wall where it wraps around the observation deck, employing the central atrium to connect with a membership club one floor below. Reaching out while distinguishing itself is part of the high-rise balancing act that this small museum pulls off with style. ■

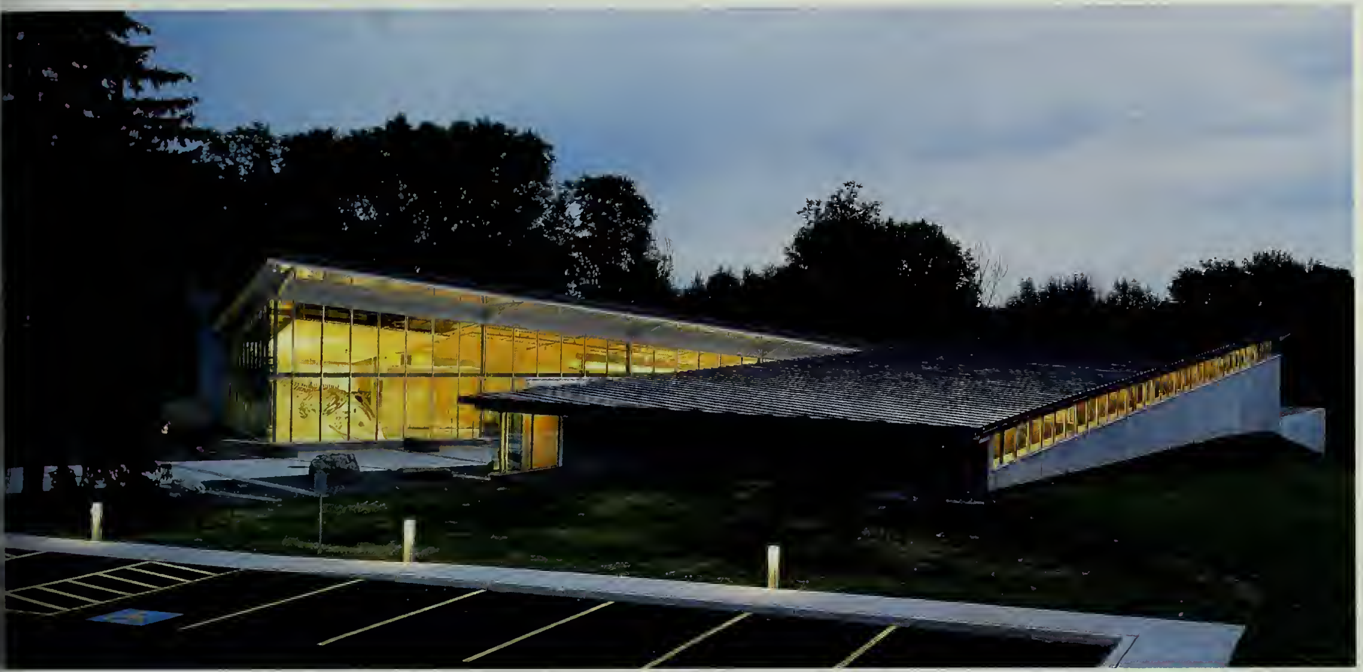
Sources
Tempered laminated glass (for cone): *Asahi Glass*
Steel (for cone): *Toa Tekko Construction*
Stainless-steel fittings (for cone): *Tripyramid Structures*
Lighting (for cone): *Yamada Shomei*
Back-painted glass wall panels: *Nippon Sheet Glass*
Translucent glass: *Asahi Glass*
Indian sandstone: *Ando Marble*

For more information on this project, go to Projects at **www.architecturalrecord.com.**



A high window wall beckons visitors to the entry pavilion (opposite), which encloses the switch-back ramp (this page) that descends into earth around Barbara Page's *Rocks of Ages Sands of Time.*

Weiss/Manfredi evoked a geology shaped by water to help the **MUSEUM OF THE EARTH** tell the 4.6-billion-year history of the planet



y James S. Russell, AIA

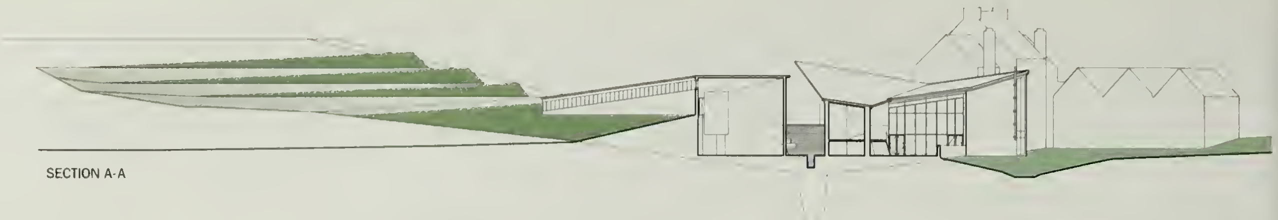
One of the largest fossil collections on earth inspired the Museum of the Earth, but it lacks what packs 'em in: dinosaurs. The museum does have a passion to teach, however, embodied in the energy of its youthful director, Warren Allmon. The fossil record, e says—as he pulls open drawer after drawer, each revealing a panorama f ancient life forms frozen in stone—can be used to teach both the history f earth and the history of life on earth.

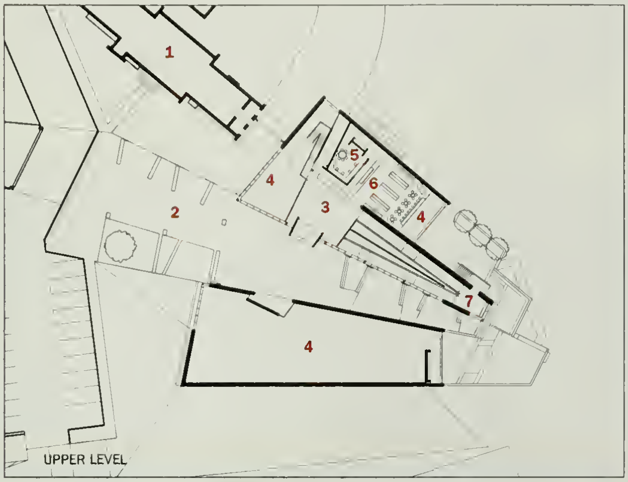
The Paleontological Research Institute (PRI), which built and uns the museum, possesses one of the largest such collections on earth. Vhile its presence in tiny Ithaca, New York, is largely accidental, it grew, in art, because central New York State is such a geologically rich region. thaca sits at the base of Cayuga Lake, one of 10 aptly named Finger akes, which were carved out as massive ice sheets receded 20,000 years go. Since then, streams have gouged the ridges surrounding the lakes nto spectacular waterfall-veiled gorges that reveal millions of years of eological history and expose such a wealth of fossils that even schoolhildren can readily find them.

As the institute, affiliated with nearby Cornell University, conemplated expanding its small exhibition program into a full-fledged museum, Allmon found himself confounded by the task of telling 4.6 billion years of Earth's history in a few thousand square feet. "Finding the message was the hardest thing," he says.

The architect PRI had hired for the project, Weiss/Manfredi, of New York City, looked at bubble diagrams prepared by exhibition experts with quiet dismay. "They assumed a flat, introverted site with a black box sitting on a parking lot," said Michael Manfredi, AIA. He and his partner, Marion Weiss, saw much richer potential in the site, the institute's 6 acres, high on a hill sloping downward toward the lake. "This was a landscape shaped by water, radically in terms of glaciation," explained Weiss on a

Project: *Museum of the Earth, Ithaca, New York*
Architect: *Weiss/Manfredi Architects—Marion Weiss, Michael A. Manfredi, AIA, design partners; Christopher Ballentine, Armando Petruccelli, Lauren Crahan, Michael Blasberg, Giselle Sperbe, Christopher Kimball, design team*
Consultants: *Weidlinger Associates (structural); T.G. Miller (civil); MG Engineering (mechanical/electrical); Jeff Kennedy Associates (exhibition design)*
Contractor: *Hueber Breuer Construction*


SECTION A-A


1
4
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6
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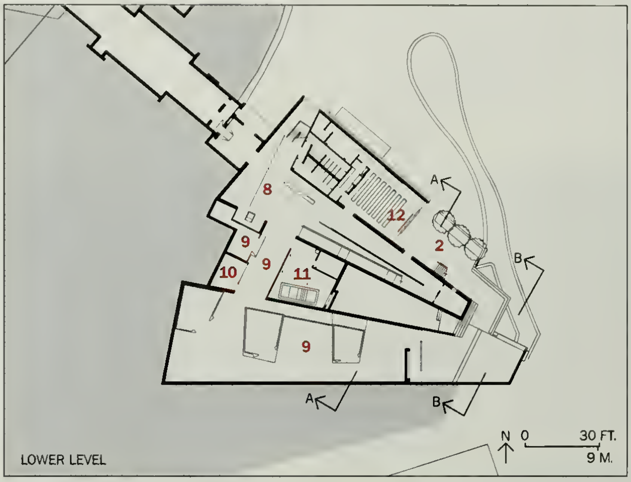
4
UPPER LEVEL


A
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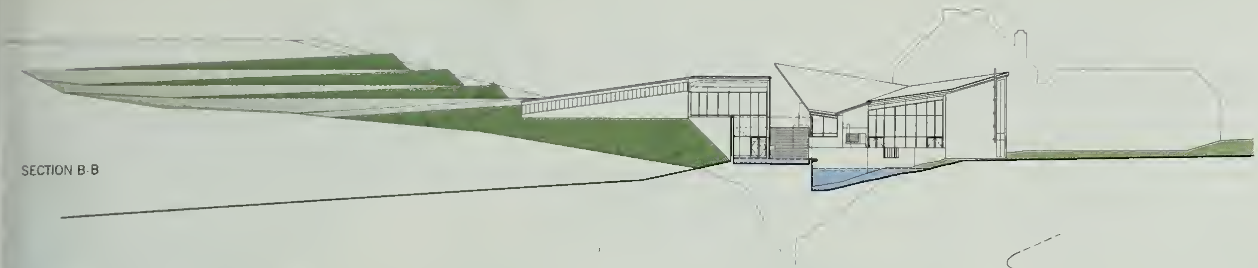
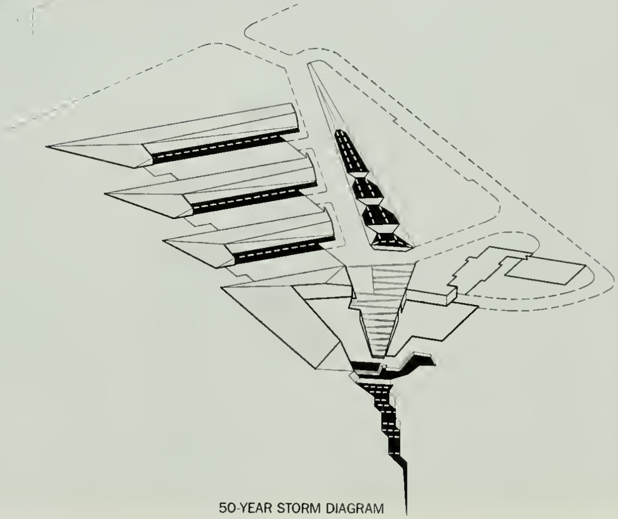
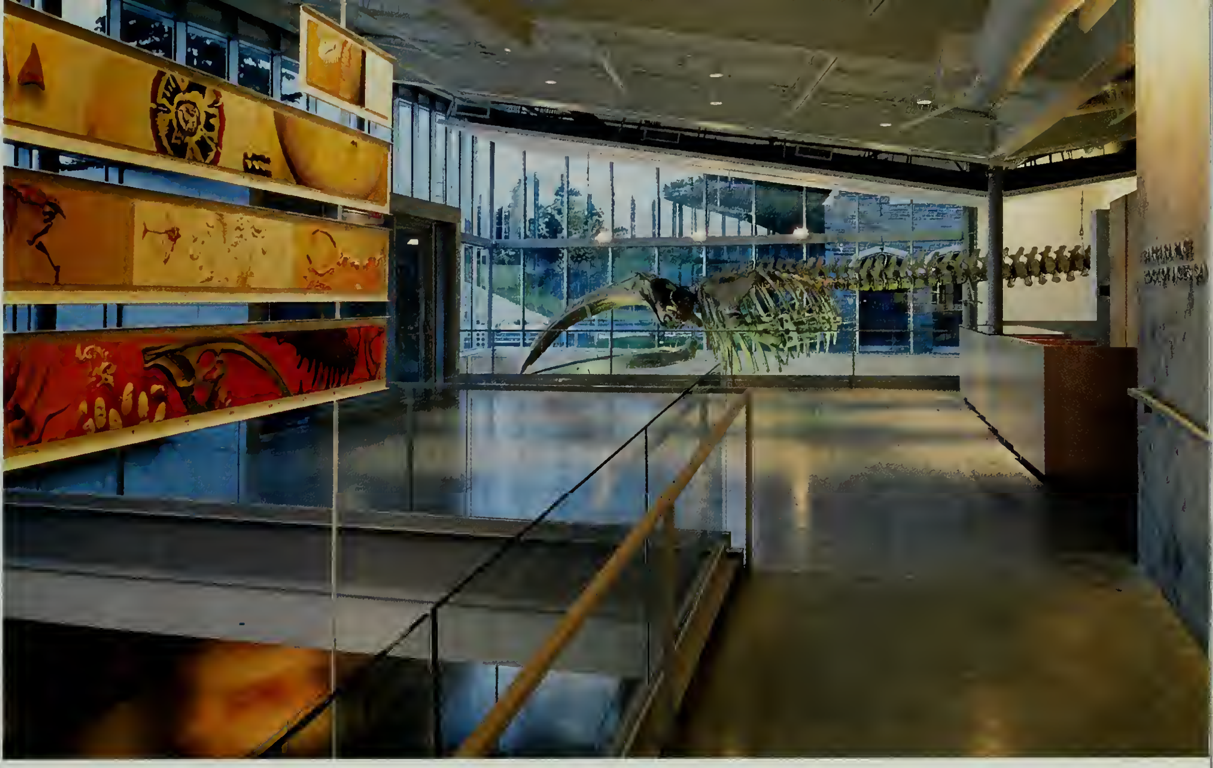
30 FT.
9 M.
LOWER LEVEL


SECTION B-B

xisting institute
ntry plaza
obby
pen to below
ffice
ift shop
amp gallery
hanging exhibitions
xhibition
ssil prep
isplayed geothermal
echanical
ultipurpose

Weiss/Manfredi tilted parking terraces into berms that convey runoff into a terraced, open culvert (diagrams, above and opposite), where gravel and plants filter and slowly release it. (The berms also screen cars from view.) The entrance terrace (photos, opposite) cascades between the two pavilions as an embodiment of the path of water, opening to a planned vista to Lake Cayuga. Water reappears in a small pool (below left). A weir spills into another set of ponds—or puts winter ice on display (bottom right).


50-YEAR STORM DIAGRAM



Although the museum is united at the lower level, visitors first see two pavilions (entry exterior and sketch, opposite, top). The suspended skeleton of a rare whale orients visitors in the northern pavilion, at the beginning of their journey down the ramp (right and opposite, bottom) to the main exhibitions (below) in the southern pavilion.

recent visit. “Giving this idea form, helping to make it visible, seemed a way to make the design intrinsically powerful.” From the bermed-up parking terraces (following spread) to the “erupting” sunken roof forms, the architectural strategy puts visitors in touch with the physical reality of geology, preparing them for the vast abstraction of geological history.

It was not easy reconciling this ambitious architectural idea with Allmon’s equally ambitious aspirations for the exhibitions. Oh, and $5.8 million for reinforced poured-in-place concrete and steel structures plus sitework was a stretch, as was the $3 million ultimately spent for exhibitions. While the fossil collection was the basis, Allmon did not feel constrained by it. The whale skeleton that greets visitors at the entrance (above) happened through just the kind of difficult conversation that frequently took place during the design process. “Many of Marion’s sentences began with ‘you can’t afford … ’ ” said Allmon. “But she told us we needed an artifact that made a big splash at the entrance—something to draw people in.” That something turned out to be a rare right whale, which beached itself and died in New Jersey. At a day’s notice, staff rushed to claim the whale, removing its flesh to preserve the skeleton. All in a director’s day’s work, Allmon shrugs. “What’s a whale doing in a paleontology museum?” he asks rhetorically. “This whale was tracked for a long time, and scientists knew a great deal about it. And it gives us a chance to talk about the environment and conservation.”

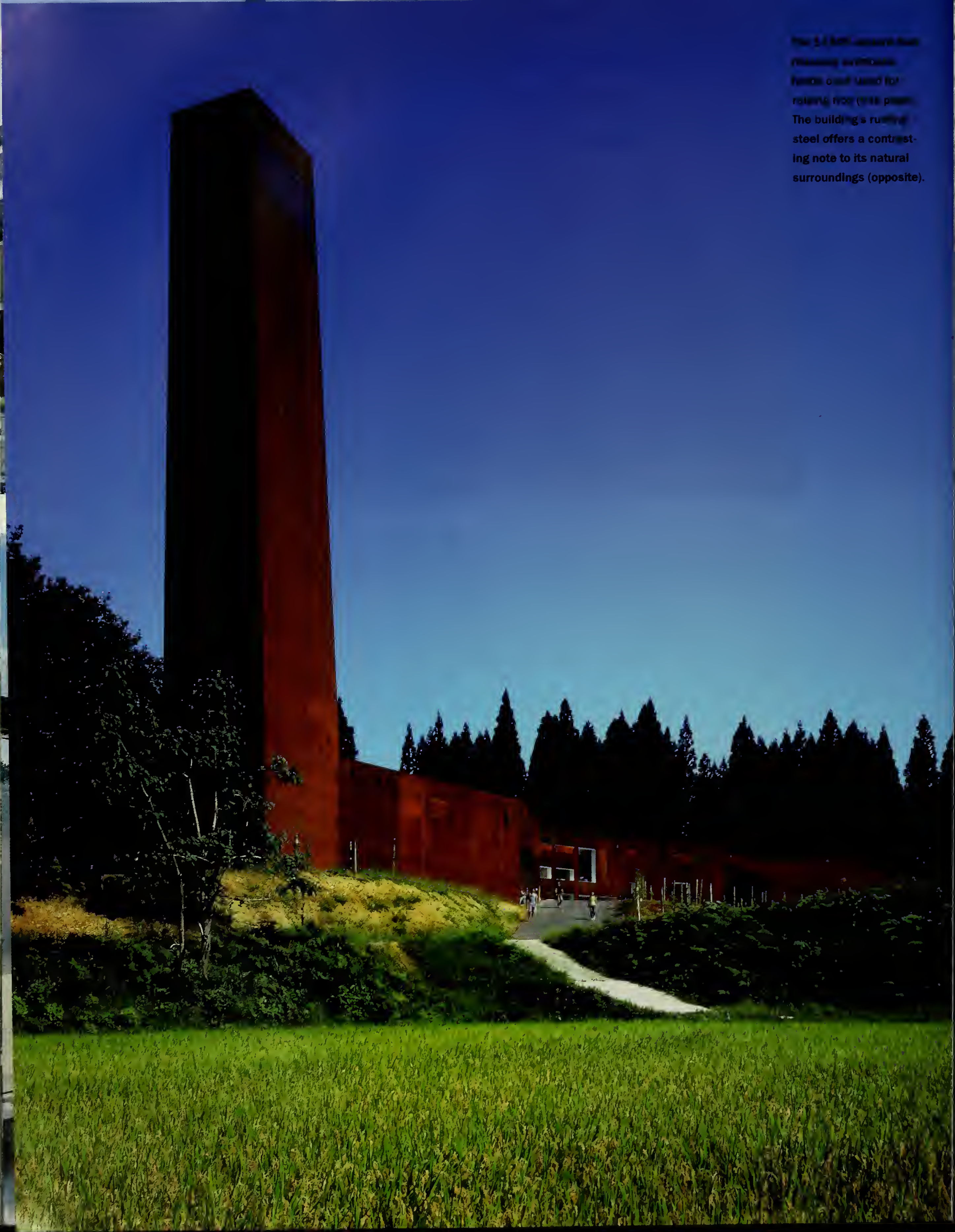
Allmon also asked the architects to incorporate artwork by Barbara Page, a local artist. Inspired by the institute’s collection, she painted a record of geological time. Weiss and Manfredi incorporated it into the circulation strategy, devising a ramp that wraps Page’s *Rocks of Ages Sands of Time*. Each panel depicts one million years of geological time (above). The architects mounted each row of panels according to distinct geological eras.

Within the 7,000-square-foot envelope of the exhibition hall, Jeff Kennedy Associates’ exhibition design traces geological history through a combination of artifact displays (including 665 from PRI’s collection), hands-on “Discovery Stations,” and small A/V-heavy enclosed theaters. Clerestories bring in light, but hanging metal blades keep sunlight from reducing exhibition readability. Visitors can end their tour outside, where the terrace offers more display space for weather-tolerant specimens.

“We’ve worked to make the museum accessible at many levels,” adds Allmon, “for the Ph.D.s in dreadlocks and the rural families who live 5 miles away but think of Ithaca as the big city.” And it has worked, not just in expanding attendance toward a goal of 50,000 to 60,0000 annually: The temporary-exhibitions area below the whale skeleton has become unexpectedly popular for weddings and parties (which also help augment the museum’s finances). “It’s the architecture that attracts them,” says Allmon. “It’s where everyone wants to be.” ■

Sources
Curtain wall: *Vistawall*
Standing-seam copper roof: *Revere*
Self-cleaning glass: *Pilkington*
Exterior stone: *Finger Lakes Stone, “Lenroc”*
Geothermal heating/cooling: *Tag Mechanical System*

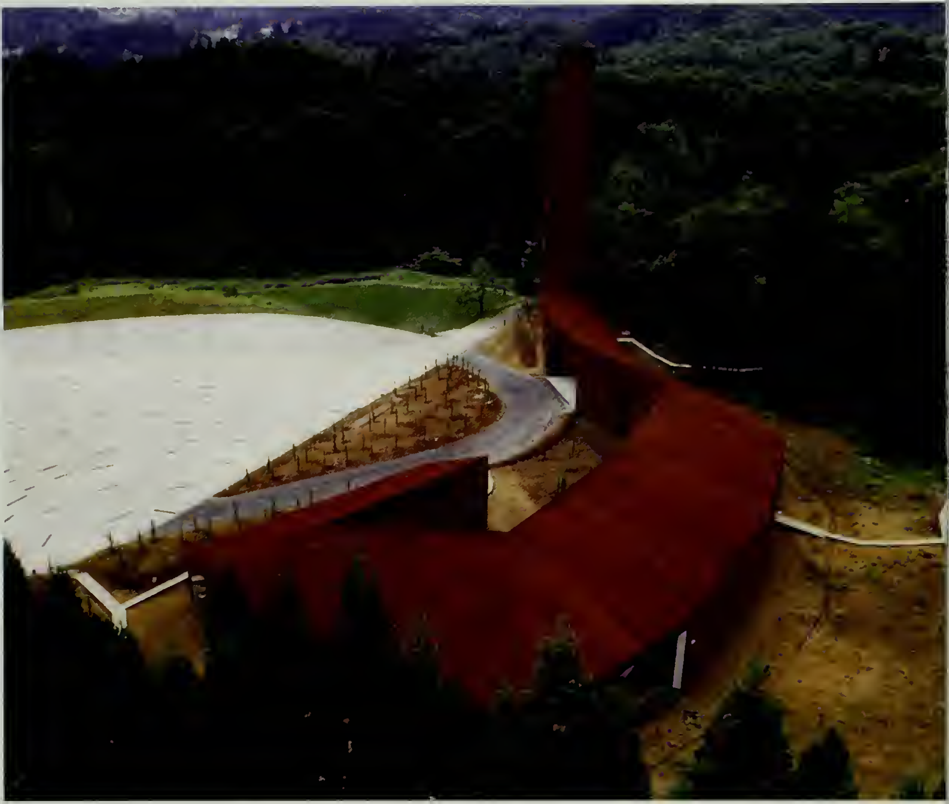
For more information on this project, go to Projects at **www.architecturalrecord.com.**



The [illegible] tower [illegible] house used for raising rice (this page). The building's rusting steel offers a contrasting note to its natural surroundings (opposite).

Takaharu and Yui **Tezuka** inserted a sleek exhibition tube within the rugged steel armature at the new **MATSUNOYAMA SCIENCE MUSEUM**

By Naomi R. Pollock, AIA



Japan's Niigata Prefecture isn't called "snow country" for nothing. The region gets an astounding 95 feet of snow annually—enough to blanket land, trees, and buildings with a 16-foot-deep layer of icy precipitation from December to April. Resisting this enormous load drove both the design and construction of Takaharu and Yui Tezuka's scheme for the Echigo-Matsunoyama Natural Science Museum, done in collaboration with architect and engineer Masahiro Ikeda. Commissioned for the 2003 Echigo-Tsumari Art Triennial, a regional event that included public sculpture and new buildings by the Dutch firm MVRDV and the Tokyo-based Hiroshi Hara + Atelier, the project occupies a beautiful site 145 miles north of Tokyo where mountains meet fields once cultivated for rice. Like a submarine built to withstand massive snow loads, the Cor-ten steel structure hugs the ground, then turns vertical with a 112-foot-high tower reminiscent of a giant periscope. Taller than the deepest drifts, the tower's observatory is an ideal spot to survey the rolling, wooded landscape—even in the dead of winter.

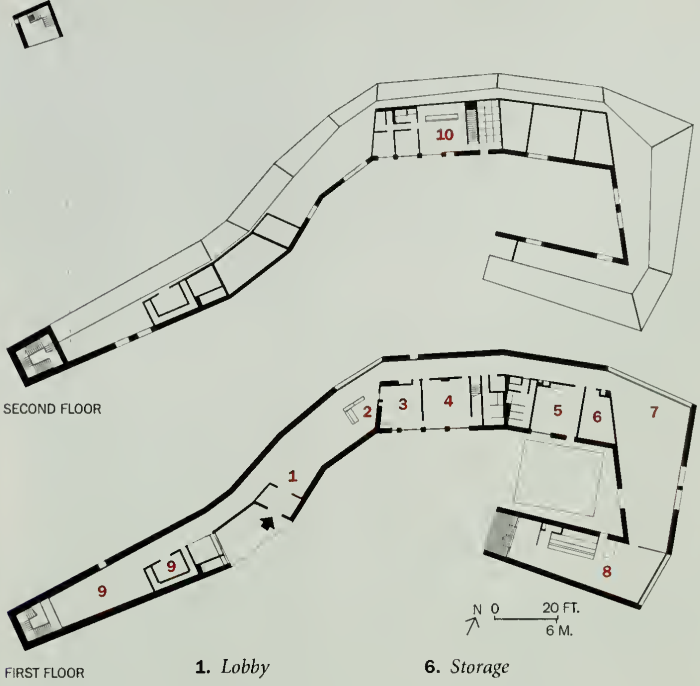
A clear departure from the glass-and-steel structures typical of many Japanese architects today, the heavily armored museum looks more like an industrial relic than a brand-new cultural facility. The building's irregular form, variegated surface, and absence of highly articulated details all contribute to its unique appearance. "I wanted to make a building that looks like a ruin," explains Takaharu Tezuka. The museum also represents a new direction in materials and forms for the husband-and-wife team best known for their experimental houses that integrate inside and out [RECORD, December 2002, page 98].

The nearly windowless tower marks one end of the building, while a café occupies the other. Visitors enter through a door recessed near the middle of the building, then walk either in one direction to exhibition areas, or the other, past offices, meeting rooms, laboratory, function hall, and the café. Support facilities for researchers studying local flora and fauna are squirreled away on the second floor. The architects turned the tower into an unusual sensory experience, keeping the 160-step ascent in semidarkness and punctuating it with an artist-designed light-and-sound installation activated by a solar-energy sensor on the roof. At the top, climbers are rewarded with a flood of daylight and a dazzling, panoramic

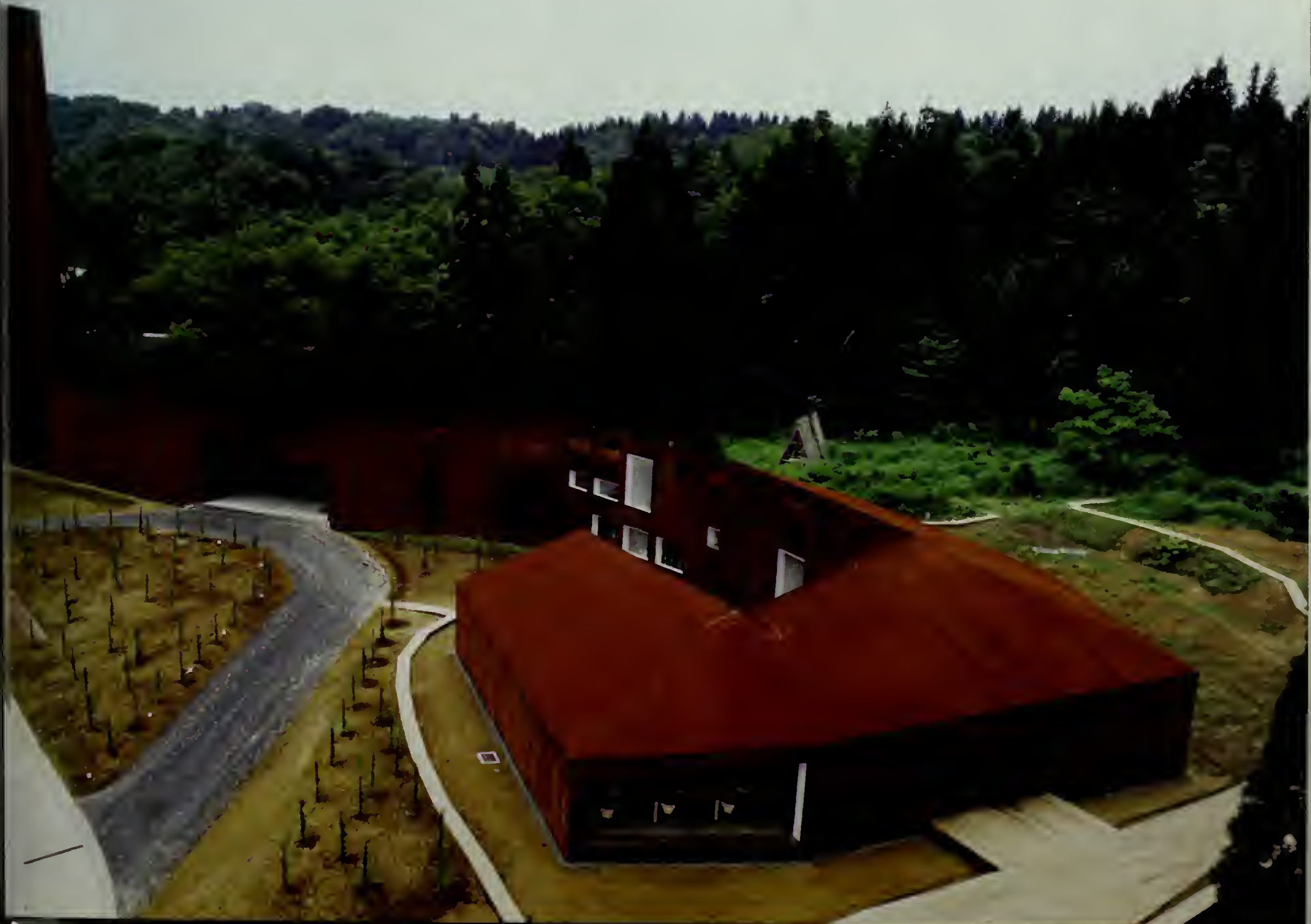
Naomi R. Pollock, AIA, RECORD's special international correspondent, writes about architecture and design from Tokyo.

Project: *Echigo-Matsunoyama Museum of Natural Science, Matsunoyama, Japan*
Architect: *Takaharu & Yui Tezuka Architecture/MIAS (Masahiro Ikeda Architecture Studio)—Takaharu Tezuka, Yui Tezuka, Masahiro Ikeda, Miyoko Fujita, Ryuya Maio, Mayumi Miura, Taro Suwa, Takahiro Nakano, Toshio Nishi, Tomohiro Sato, Makoto Takei, Hiroshi Tomikawa, Masafumi Harada, Hirofumi Ohno, project team*
Engineers: *MIAS (structural); Eiji Sato, Hisakatsu Hemmi/ES Associates (mechanical); Shigetoshi Kibayashi/Kankyo Total Systems (electrical)*
Consultants: *Shunsuke Hirose/Fudokeisei (landscape); Masahide Kakudate (lighting); Akira Ono/Nagata Acoustics (acoustics)*
General contractor: *Takahashi-Gumi*

Floor-to-ceiling windows (right and below) employ the same thick acrylic as aquariums. A pitched end elevation echoes the shape of local sheds (opposite, top). Local species of trees have been planted to restore the site (opposite, bottom).



1. *Lobby*
2. *Reception*
3. *Office*
4. *Conference*
5. *Laboratory*
6. *Storage*
7. *Function hall*
8. *Café*
9. *Exhibition*
10. *Naturalists lounge*



view of the hilly landscape and indigenous buna trees that lie down under the weight of the snow each winter and pop back up each spring.

Though the building's pitched short elevation derives from the profile of the simple sheds that protect local roads from the snow, its plan traces an abandoned path that once linked stepped rice paddies nearby. The building not only replicates the old path; conceptually, it is a path. Encased within the museum's rusting-steel armature, a stark white tube runs the length of the building, narrowing where people walk and widening where they pause to look. Instead of separate galleries, the museum has one long corridor lined with display panels, tanks, and terrariums, and some large images of regional plants and animals projected directly onto the walls. The only discrete gallery contains a donated collection of butterflies mounted in cases stacked from floor to ceiling.

At the same time, the building serves as a place to observe and reflect on the surrounding environment. Framed like pieces of art, floor-to-ceiling views out to the woods, fields, and distant mountains are as important as the artifacts inside. "If you are walking in a forest, you stop and look at many things," says Takaharu Tezuka. "I wanted to make a building where you can stop and look out."

The architects inserted the great picture windows where the building bends, so they could open up sectional views in wintertime of compacted snow and any forms of life suspended within it. While designing the museum, they envisioned daylight filtering through loose snow at the top of great snow drifts and seeping inside the museum. Because of the snow load and the tremendous openings—the largest one is 39 by 13 feet—the windows had to be made of 3-inch-thick acrylic, the same material used at aquariums. But acrylic is also three times clearer than glass, which takes on a greenish cast as it gets thicker. The equivalent of triple glazing, the transparent sheets are good insulators whose visibility is not clouded by condensation buildup.

The windows, however, were not the only reason the Tezukas had to look beyond the scope of standard construction technology. Made of steel plates varying from 0.2 to 0.3 inches in thickness, the building's Cor-ten body required the expertise of shipbuilders to weld it together on-site. To withstand snow loads of 1.5 tons/square meter, a structural steel frame concealed between exterior and interior walls backs up the outer steel shell.

Like a thermos, the building takes advantage of a double skin—in this case, separated by a 22-inch slot of air space where the mechanical system circulates hot air in winter and cool air in summer. A land of climatic extremes, Niigata Prefecture is a place where rugged winters lead to blistering summers, when temperatures can soar to 110 degrees Fahrenheit. "The outside of the building gets so hot you could fry an egg on it," chuckles Takaharu. Because the building is made of steel, it expands and contracts 8 inches in length each year when the temperatures hit their highs and lows. Instead of connecting columns directly to the foundation, the architects inserted stainless-steel panels between the structural frame and the concrete base, enabling the walls to slide along the length of the building. In addition, grooves—not holes—in the stainless-steel panels allow the bolts securing the columns to glide back and forth. But because it had to be anchored firmly in three places, the building actually changes shape, then snaps back into place.

While man-made interventions were necessary to keep the interior comfortable year-round, the Tezukas are happy to let natural forces have their way outside. In fact, the building's exterior has already begun to take on the yellowish-red hue of the iron-rich soil. The architects hope that in 30 years the land will return to its unaltered state. To jump-start that process, they enlisted the aid of an ecologist and local volunteers who gathered and transplanted indigenous saplings and seeds to the site. "Our intention was not to make a beautiful landscape, but to restore it," says Tezuka. Offering dramatic vantage points for visitors to appreciate the snow and scenery, the Matsunoyama Museum underscores that beauty. ■

Sources

Cor-ten steel panels: *Yamaki Kogyo*

Acrylic windows: *Ryoko*

Finnish birch furniture: *Okamura Seisakusho*

CAD system: *Micro Station*

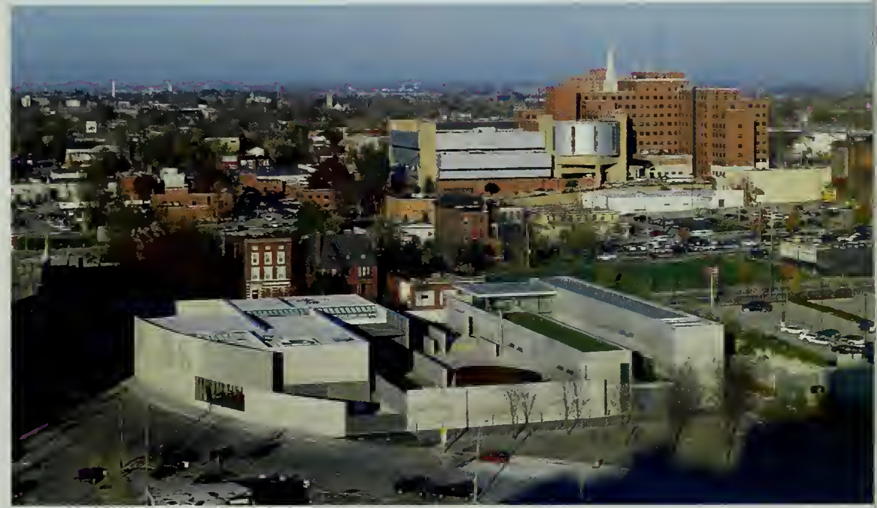
Clear concrete-floor coating: *Atomix*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

he architects
esigned the interiors
s a series of unfolding
paces, from the
obby (opposite, right)
nd exhibition areas
below) to a multifunc-
ional hall (right) and
café (opposite, left).
ome displays are
rojected directly
nto walls and can be
hanged easily, while
thers are fixed.

The Contemporary shares its site with Ando's Pulitzer (right in photo opposite) at the edge of the Grand Center arts district. At its entrance (this page), cantilevered panels frame the sky.

In Allied Works' CONTEMPORARY ART MUSEUM ST. LOUIS, architecture is understated by design, heightening the viewer's experience



By James S. Russell, AIA

A great many Modern-art spaces are contained in highly expressive Modern architecture. So why, Brad Cloepfil, AIA, asked himself, "was the romantic notion that contemporary art can only be inspired by—and presented in—found space so resilient?" His own dissatisfaction, which parallels that of many artists, is hat too much museum architecture "intends to be the subect" of the experience, "and keeps reiterating its own ideas at every level and at every moment." For the young, scrappy Contemporary Art Museum St. Louis, he chose what could be a more daring course by designing less a building than a "vesel"—one that "prepares the ground" for the experience of art.

Cloepfil, the principal of Allied Works, of Portland, Oregon, does not know precisely what he is preparing the visitor for. The St. Louis Contemporary, like a number of such institutions, doesn't have a collecion and doesn't intend to obtain one. Similarly, its director, Paul Ha, has good idea of the kinds of artists and trends he wants to showcase, but much of what he most wants to exhibit "has not even been made yet."

Such a strategy does not make the architect's job easy. "We didn't want a precious-object place," explained Betsy Millard, Ha's predecessor, who was director during design and much of construction of the new building. "We talked a lot about warehouse space with Sheetrock. We know hat works. But will the art of today look good in another kind of space?"

Actually, the 27,000-square-foot project's $6.5 million contruction budget did not permit much that was precious at all. But it's a big step up from the leftover spaces that the Contemporary has occupied ince its founding in 1981. As long as seven years ago, the institution began planning for a permanent home. It had forged ties with the Pulitzer Foundation, whose leader, Emily Pulitzer, had enlisted Tadao Ando to rect a combination of think-tank place and exhibition space for the oundation in the Grand Center cultural district. Pulitzer donated land next to the Ando building for the Contemporary. The combined instituions help to forge a cultural critical mass in a city with too little art, she ays. "The combination is one plus one equals five."

Explaining his design approach, Cloepfil says, "I wanted a space hat is energized on its own terms but also would be inspirational for rtists. In a noncollecting context, you hope that artists are intensely motivated to generate work for the space." He divided the floor area with 2-foot-high concrete panels running east to west (some clad in drywall, others left unfinished), and ran similar panels overhead in spans as long as 70 feet north to south. (A small, upper-level mezzanine, with offices and an education space, can be appropriated for additional displays.)

The "upper order" of panels, clad in glistening stainless-steel metal mesh, creates a powerful architectural definition of volume but leaves the "lower order" woven underneath unencumbered for the mounting of art. Cloepfil changed ceiling heights between the panels, slotting the gaps with clerestories. The floor areas also shift gently through ramps and shallow stairs, thereby defining three large exhibition areas primarily by differences in height (13, 20, and 26 feet) and quality of light. With floor space freed of columns (see plan, page 128), the arrangement permits curators to further subdivide at will.

More concrete panels unfurl along the curving sidewalk front and project beyond the building's volume—in a long, daring cantilever—to frame a dramatic rectangle of sky over the entrance. The sandblasted surface and more sunlight-refracting mesh present a tough exterior, but one which subtly contrasts with the crisp severity of Ando's building next door. This Minimalist alternation of materials, pattern, and texture represents a reconciliation of opposite impulses. He needed a largely closed exterior to provide

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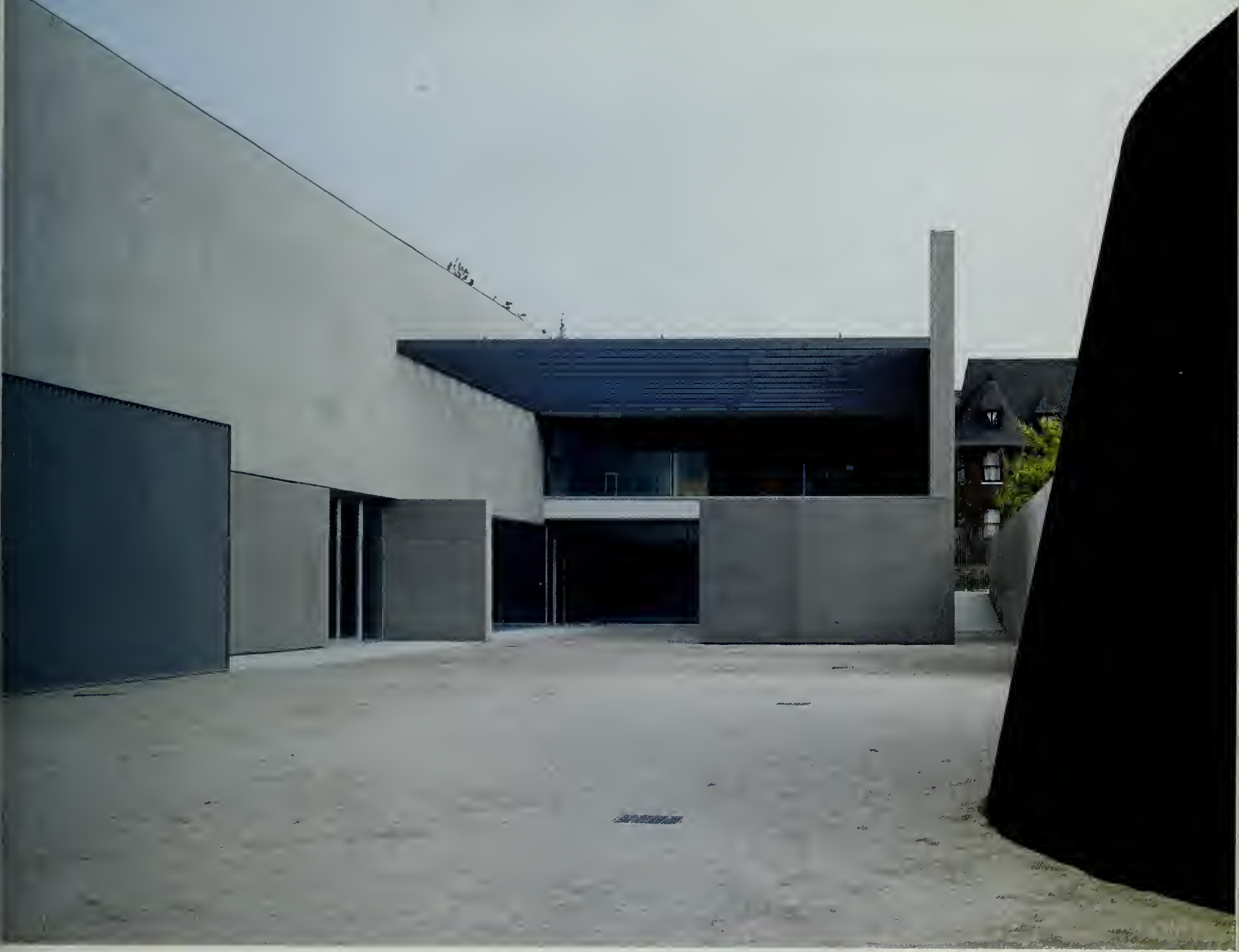
Project: *Contemporary Art Museum St. Louis, Missouri*

Architect: *Allied Works Architecture—Brad Cloepfil, AIA (principal); John Weil, project manager; Kyle Lommen, project architect; Chris Bixby, Nathan Roelofs, Andrew Kudless, Chelsea Grassinger, team*

Engineers: *KPFF (structural); Arup (m/e/p, fire protection)*

Consultants: *Horton Lees Brogden (lighting); Architectural Concrete Associates (concrete); Shannon and Wilson (geotechnical); Kuhlmann Design Corporation (civil)*

Contractor: *Tarlton Corporation*



tainless-steel mesh
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and of concrete
opposite, top right
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ooms appear behind
he veil of mesh in low
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oom to the view (near
ight), or provides a
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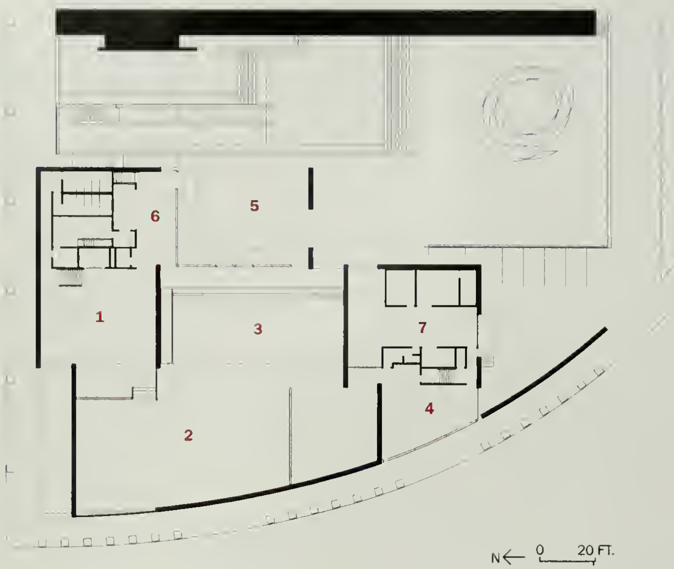
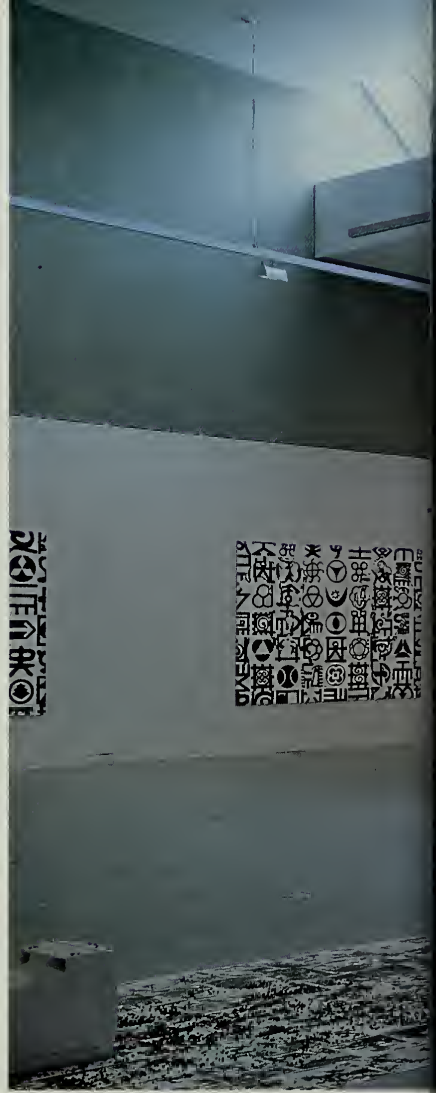
n Richard Serra's
oe (above, far right,
nd opposite top left).

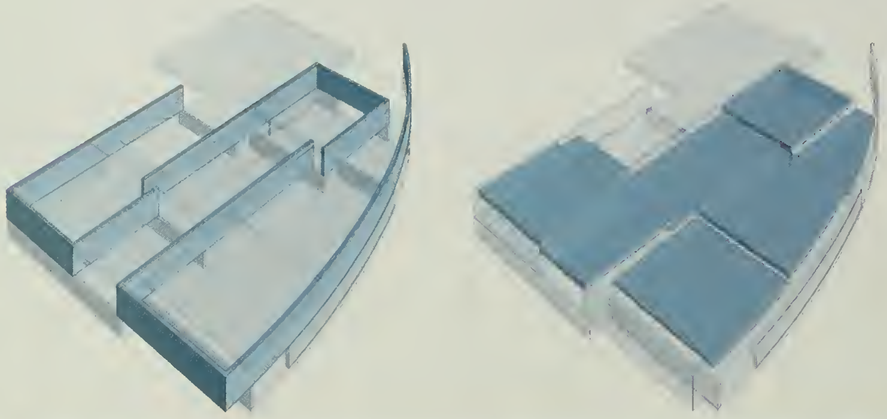


GROUND FLOOR

1. *Lobby*
2. *Exhibition*
3. *Performance*
4. *Education*
5. *Courtyard*
6. *Café*
7. *Loading*

The gallery space is structured by criss-crossing concrete panels (diagrams below). Clerestories spread light between shifted ceiling planes (right and bottom right). A partition separates the entry (right in left photo below) from the exhibition spaces.





mple art-hanging space. ("I fought those windows!" Millard admits.) And e adds, "the building should establish a boundary as it merges with the city."

Throughout, Cloepfil strove for a delicate balance. "There's as uch 'architecture' as possible—in its power to evoke—and as little of the isible hand of the designer as possible," he explained by telephone from ortland. This results in a certain ambiguity. The exterior is so undertated that it barely identifies itself as a museum. Local architects criticize as too fortified-looking for an emptied-out city where too few instituons are inviting. The visitor can't miss the assertive architectural tructuring of the interior, but the space itself feels amorphous. This nderdefined nature, however, may aid the institution in its mission. "He ave us a clean box to work in," says director Ha. "It's grand and impresive but not daunting," a boon for the emerging artists he wants to show. le expects artists to attach works to every surface, even drill through the oor. (The windows have become fair game for artist Mary Evans in the itial exhibition, *A Fiction of Authenticity: Contemporary Africa Abroad*). loepfil cringes a bit when he hears this, but he did intend that the art ould come forward, even if it dangles sloppily from that tidy Swiss exteor. The design may act as the perfect foil to the hanging exploded ianos, lurid performance pieces, and mud-splattered walls that are the read and butter of contemporary art exhibitions these days.

Ha's task to build attendance from a modest 10,000 annually won't be easy. No lively art and gallery scene exists to nurture (and be nurtured by) the Contemporary Art Museum St. Louis. "We have to overcome the stigma that we are a museum about contemporary art," he says. In a program called New Art in the Neighborhood, he uses his classroom—which, with Cloepfil's glass wall, becomes a kind of invitation to passersby—to help young artists develop portfolios suitable for college admissions. Cloepfil created a stepped "performance space" that is implied rather than permanently enclosed by walls, which means Ha can introduce readings or dance within spaces occupied by art. Even the natural light, which many curators seek to shut out, makes a difference. "It's nice to look up and out and remind yourself that you are part of a community," Ha observes. "High school kids stare in as they go past. I like that." In a city where much of the population doesn't feel invited by museums, he adds, "the openness bridges the gap." ■

Sources

Glass: *Oldcastle Glass*

Skylights: *Super Sky Products*

Wire-mesh panels: *A. Zahner*

Steel fences: *Kupferer Brothers*

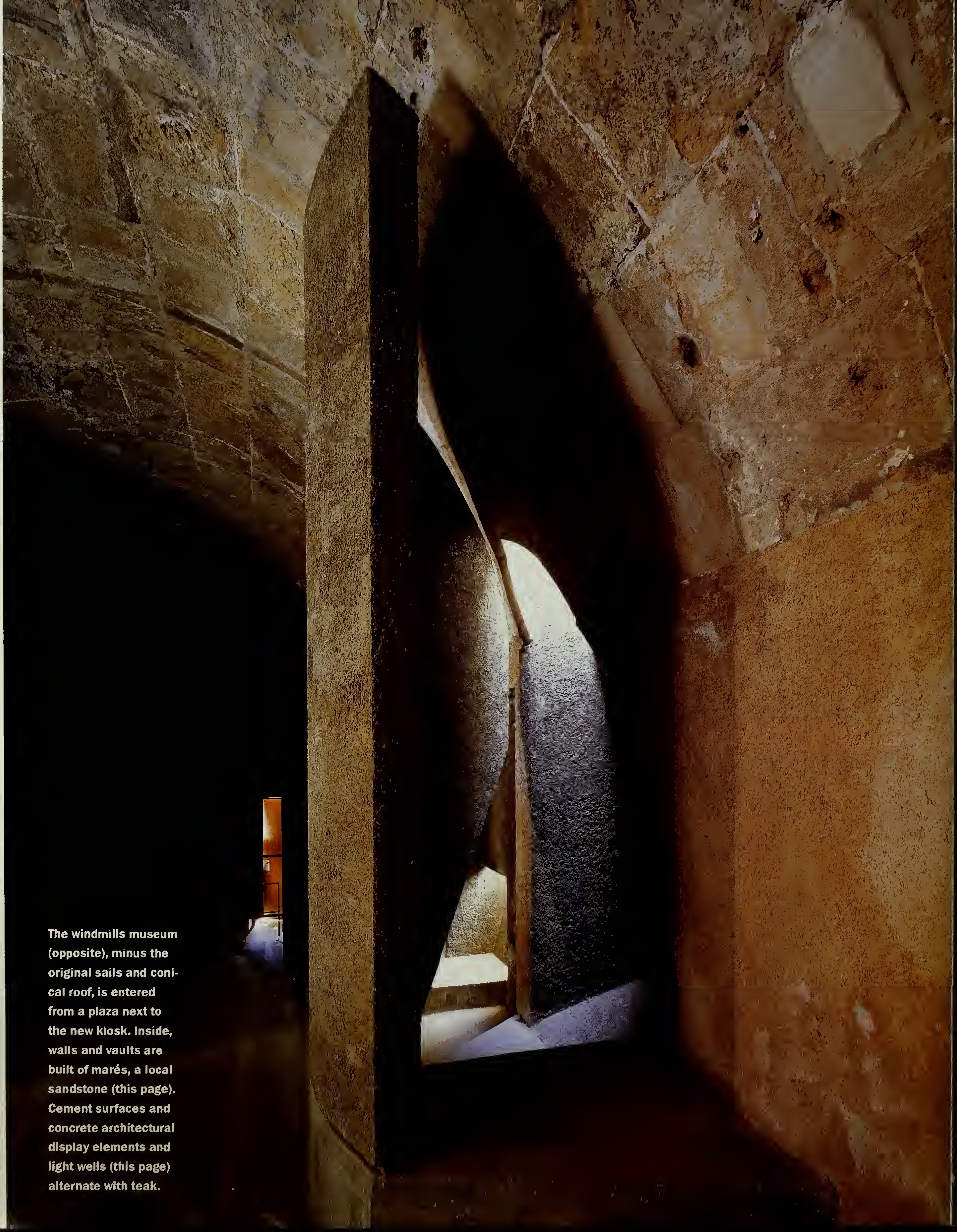
Doors: *Steward Steel; Tublite; Curries Hollow Metal (door systems)*

Conveyance: *ThyssenKrupp Elevator*

Lighting: *Lighting Services (exhibition); Focal Point (office); Hydrel, BK Lighting, Hess America (exterior)*

Bookstore shelving: *Vulcan Metals*

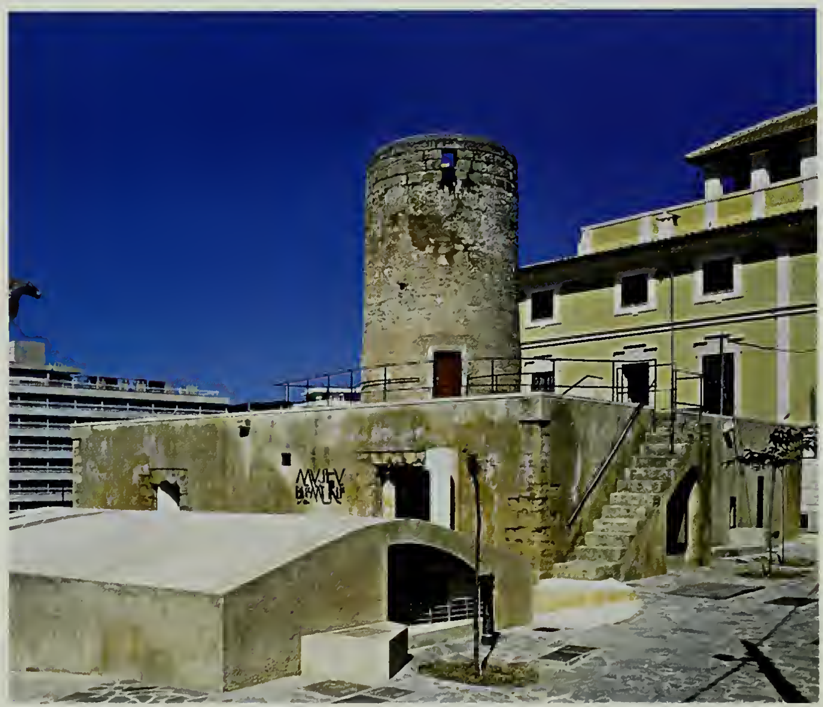
For more information on this project, go to Projects at **www.architecturalrecord.com**.



The windmills museum (opposite), minus the original sails and conical roof, is entered from a plaza next to the new kiosk. Inside, walls and vaults are built of marés, a local sandstone (this page). Cement surfaces and concrete architectural display elements and light wells (this page) alternate with teak.

Ricardo **Flores** and Eva **Prats** craft stone and wood elements in converting a windmill to the MILLS MUSEUM OF THE BALEARIC ISLANDS

By David Cohn



In adapting a 17th-century flour windmill for use as the Mills Museum of the Balearic Islands, Barcelona-based architects Ricardo Flores and Eva Prats have drawn out and elaborated upon the modest features of the historic building. In so doing, they have created an intimate itinerary through its interior, which features exhibits on the history of this centuries-old tructure integral to the Majorcan landscape.

The former windmill overlooks the waterfront of Palma, the capital of Majorca, and had appeared on a 1644 plan, one of seven such mills lining the escarpment of Es onquet. This old fishermen's neighborhood to the west of he medieval city has long been a pocket of poverty despite s prime location, and the 7,534 square-foot, $493,497 Mills Museum and plaza are part of a city effort to renew the area.

Flores and Prats did not seek to return the windmill to some hypothetical pristine state. Their approach, lus their intuitive and formal vocabulary, had its origins in the work of he late Barcelona architect Enric Miralles, in whose studio the two met while working there in the early 1990s. Accordingly, their orientation to he windmill reuse was a more archaeological one, exposing the cumulative marks of time on the structure: They preserved the uneven, stained atina of the blocks of marés, the local sandstone, on the windmill's cylindrical tower, and the chipped profiles of window lintels. Inside, the stone aults and walls retain the scars of former partitions and soot stains from emolished chimneys.

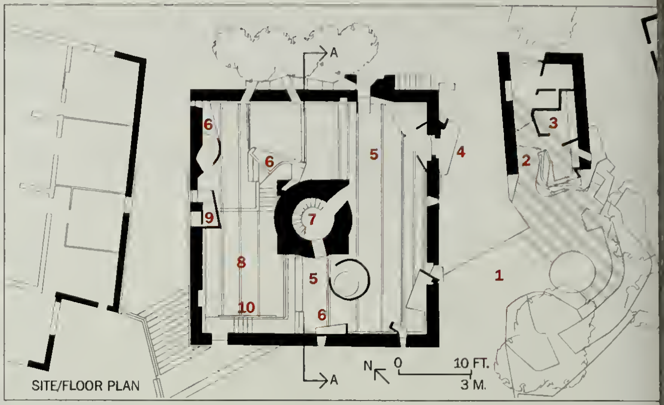
The architects have also added new elements of poured-in-place oncrete, teak, and marés stone in the same spirit. Outside, the architects laced the ticketing, bar, and bathrooms in a separate kiosk carved from vaulted secondary structure on the site, and designed a curving concrete ench in front of it to define a small entry plaza of concrete and red ceramic tile. The most notable interventions introduce natural light into he cavelike space of the windmill's base through new or modified openings that are concentrated around existing wall openings. Although the pertures are generally small in response to the powerful Mediterranean un, Flores and Prats found it necessary to control the haphazard effects caused by their disordered placement and varied sizes. This led to a strategy in which, as Flores explains, "the windows are treated like pieces of furniture that modify the light, focusing it on exhibits and displays."

For small, high openings, the architects carved light chutes out of the thick, 31-inch walls to redirect light into lower openings, which become display cases in their own right. Large openings are partially enclosed in wood and elements made of marés stone. Light spills down chutes, splashes out of framed stone boxes, and cascades from small new skylights down the curving exposed top of the thin stone vaults, changing color and intensity as it does. In addition, fixtures for indirect artificial lighting are integrated into these elements of "light furniture." Nevertheless, in sculpturally modeling the interior volume with natural light, Flores and Prats have kept the primitive, shadowy quality of its cavernlike vaults—a "vague penumbra," in the architects' words.

The horizontal space of the museum is interrupted by the dra-

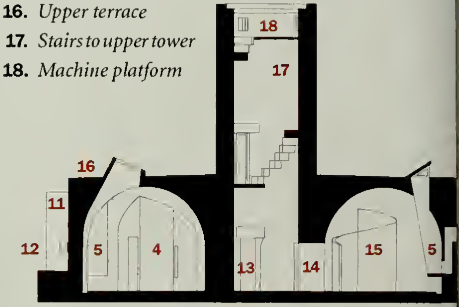
David Cohn is RECORD's Madrid-based international correspondent.

Project: *Mills Museum of the Balearic Islands, Palma, Majorca, Spain*
Owner: *Patronat Municipal de l'Habitatge; Asociacion Amigos de los Molinos, leasee*
Architect: *Flores + Prats Architects—Richard Flores and Eva Prats, principals; Maria J. Duch, Francisco Pizá, Paola Vallini, Frank Stahl, Erica Checcucci, Sole Revuelto, Armin Schmidt, Merlin Ellis, Ankur Jain, Michella Mezzavilla and Cristian Zanoni, design team*
Engineer: *Manuel Arguijo Vila*



SITE/FLOOR PLAN

1. *Access plaza*
2. *Kiosk*
3. *Office/storage*
4. *Main entrance*
5. *Exhibition*
6. *Exhibition pedestals*
7. *Tower*
8. *Auditorium*
9. *Speaker podium*
10. *Projector screen*
11. *Stairs to roof terrace*
12. *Upper street*
13. *Existing tower door*
14. *New tower door*
15. *Display chamber*
16. *Upper terrace*
17. *Stairs to upper tower*
18. *Machine platform*



SECTION A-A

matic vertical shaft of the tower, where visitors can look up and see the cantilevered stone blocks of the old stair spiraling above them. A small auditorium nearby is defined by a drop in the floor, creating a double-height space presided over by a speaker's podium.

The rather radical idea of a museum cast into semidarkness requires a special sensibility that the museum's managers, the local Association of the Friends of Windmills, do not seem to share with Flores and Prats. Consequently, the association has added powerful artificial lighting and organized the exhibition in conventional wall-mounted panels, apparently making little effort to work with the architects and their proposed integrated display system. This lack of dialogue or compromise is a pity. It trades the unique and moving spatial experience the architects have created for the kind of mundane institutional installation for which the windmill is completely unsuited. ■

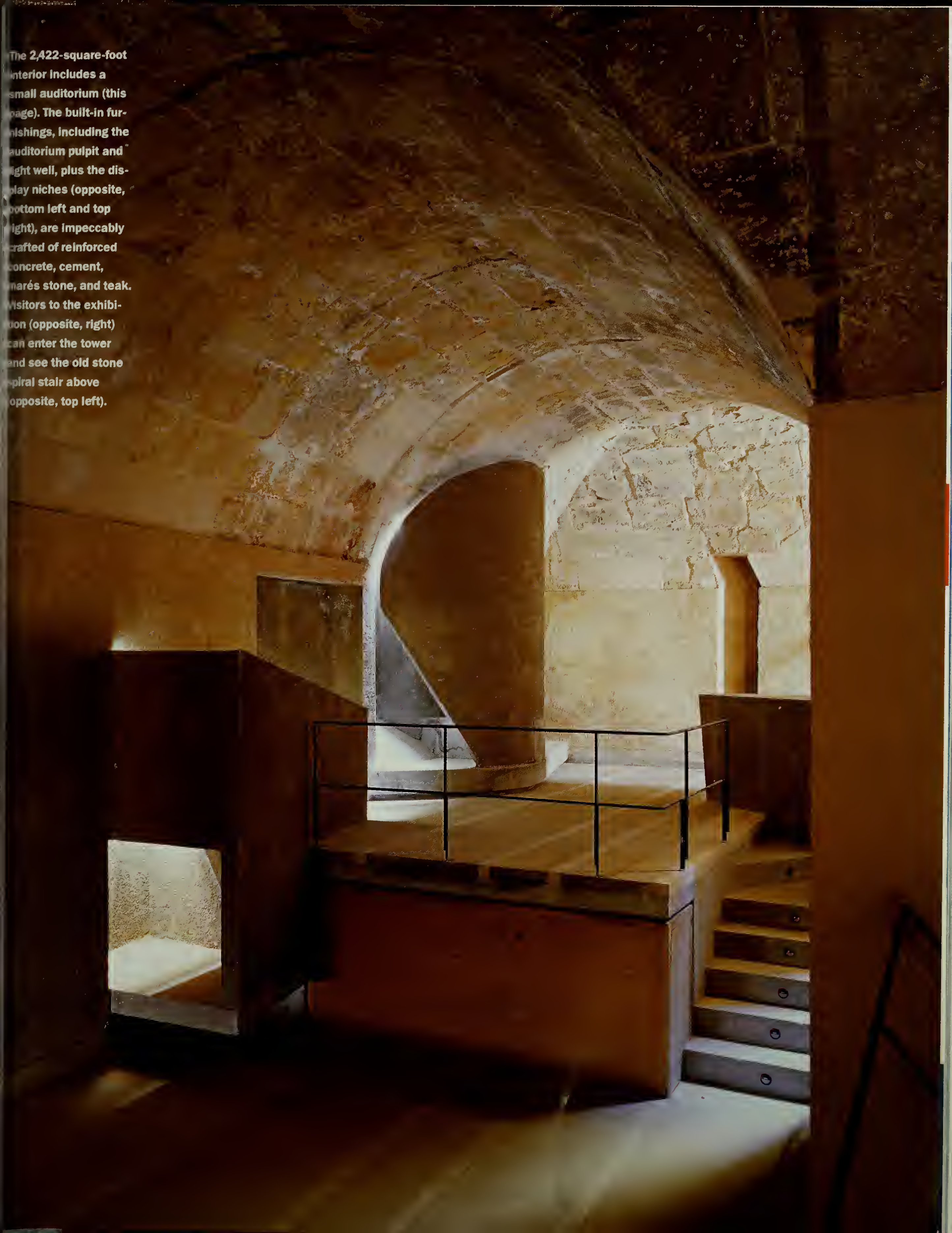
Sources

Teak and glass windows: *Poliformas*

Metalwork *Cerrajeria Marcos Perez*

Custom bar, fixed seating, tables (concrete, teak, marés stone): *Juan Cifre SA—Rafael Colom, supervisor*

For more information on this project, go to Projects at **www.architecturalrecord.com**.



The 2,422-square-foot interior includes a small auditorium (this page). The built-in furnishings, including the auditorium pulpit and light well, plus the display niches (opposite, bottom left and top right), are impeccably crafted of reinforced concrete, cement, marés stone, and teak. Visitors to the exhibition (opposite, right) can enter the tower and see the old stone spiral stair above (opposite, top left).

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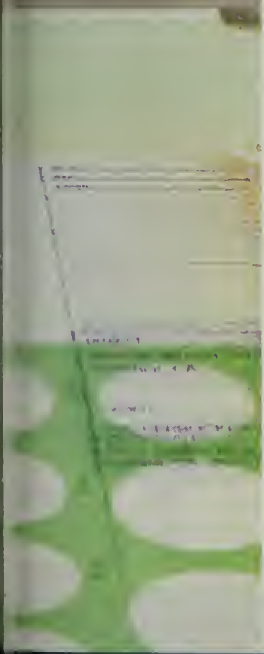

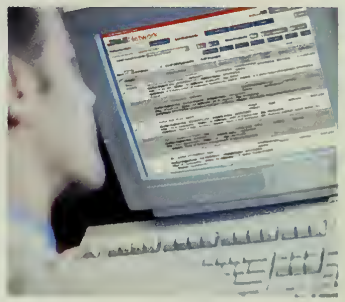

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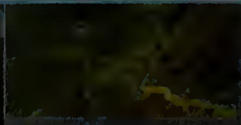
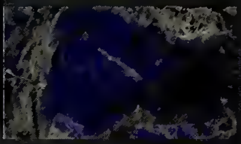

Verde Fantastico

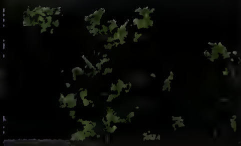
Alabastro Egiziano

Irish Connemarble Green

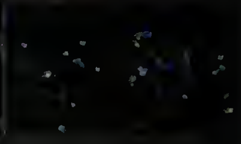
Picture Stone


Lapis Lazuli “Original”

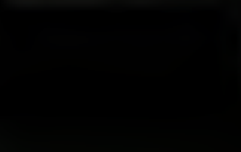
Bréche de Vendôme


Green Bowenite “Dark”

Rosso Damasco


Labradorite Blue Australe

Bianco Lasa “Vena Oro”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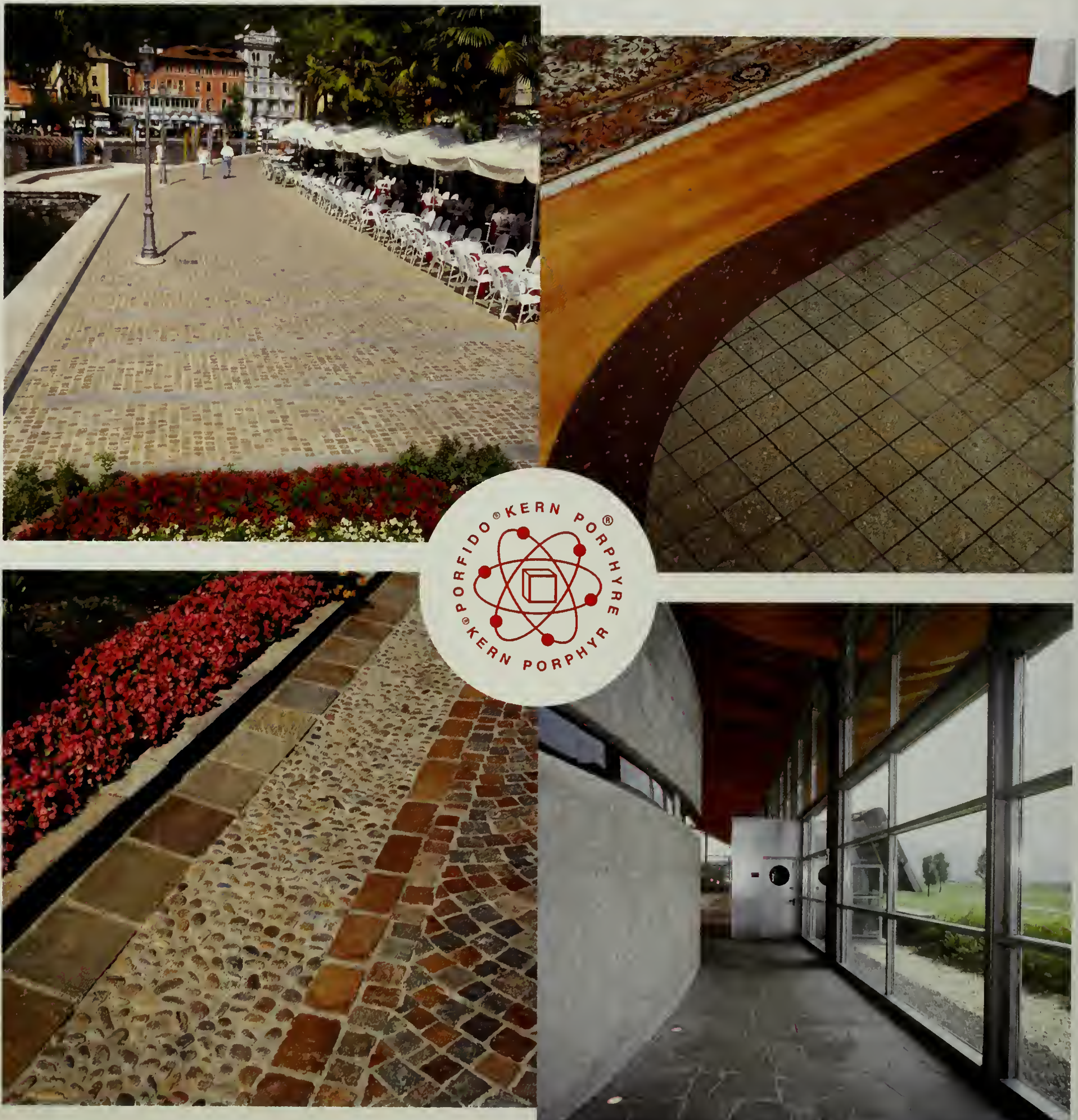

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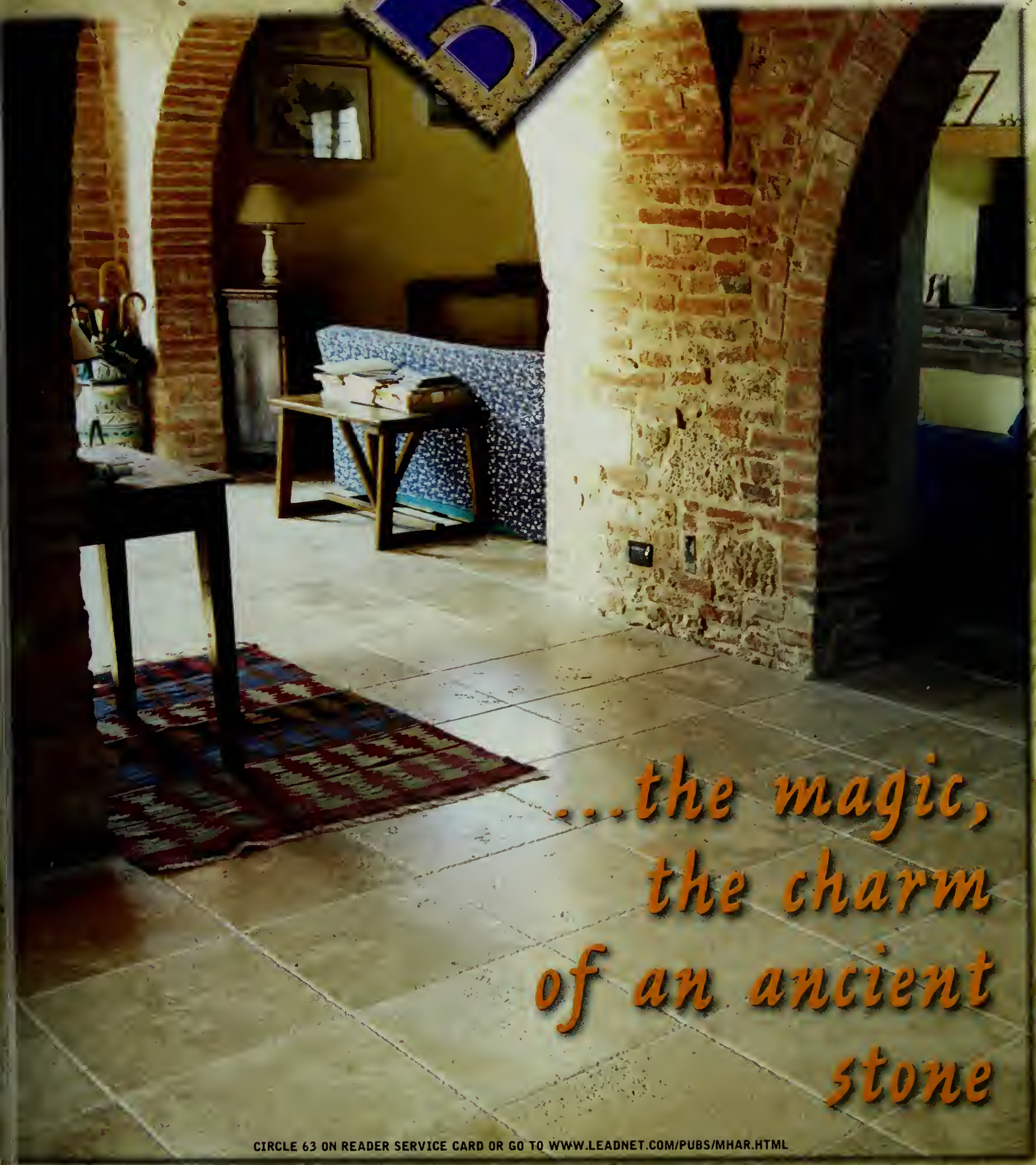

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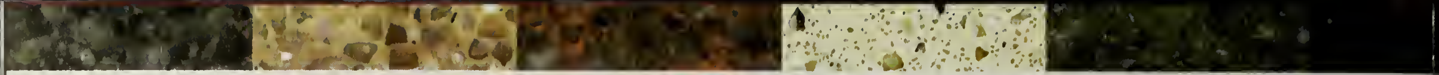

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Accessibility Regulations and a Universal Design Philosophy Inspire the Design Process

NSTEAD OF STIFLING CREATIVITY, A CLIMATE OF ACCESS PUSHES ARCHITECTS TO BE INVENTIVE

y Barbara Knecht

Accessibility is a mandate; universal design is a movement. Accessible, adaptable, and visitable environments are covered in the codes, standards, and regulations. Beginning with the Architectural Barriers Act in 1968 and culminating with the mericans with Disabilities Act (ADA) of 1990, the federal government as enacted four major laws that require public places and publicly unded projects to provide physical and programmatic accessibility to eople with disabilities. Standards that meet the physical requirements of he laws are spelled out in guidelines. Model building codes and local odes have been modified to meet and, in some cases, exceed the federal equirements. Universal design is a worldwide movement that pproaches the design of the environment, products, and communications with the widest range of users in mind. It is known elsewhere in the orld as design for all, life-span design, and inclusive design. The U.S. rigins of its philosophy date back three decades to the disability-rights ovement, but the seven governing principles (sidebar, page 147), which all for designed environments that are equitable, flexible, intuitive, perceptible, safe, easy, and accommodating, were crafted in the past decade.

Civil rights is the rationale for accessibility. The accessibility laws cus on people within a narrow range of specific disabilities, such as ose who use wheelchairs or have visual or hearing impairments. They nsure access to designated types of buildings based on assumptions bout particular barriers in the environment—for example, they stipulate at there must be one level entry into public buildings for someone who uses a wheelchair, and that a person who doesn't see should have audio signals and braille signs in an elevator.

Universal design comes from incorporating these guiding principles into underlying design thinking. There are no specific goals to reach; there is instead a framework for creating solutions. Universal design asks designers to rethink some fundamental formal architectural concepts, to contemplate environmental equity for all kinds of users, and to consider a variety of ways the environment can be designed or adapted to accommodate people's changing needs, such as those of the aging or of people who don't speak the dominant language. Providing an accessible environment often means adding a few special features designated as accessible. Providing a universal environment means creating a space that doesn't segregate some and prevent others from using it independently, but does benefit many whose needs have not traditionally been considered. The largest cohort that universal design in Europe and America seeks to include are aging baby boomers, who will soon begin to find the world more difficult to navigate. Proponents insist that universal design meets the highest aesthetic standards and contest the stereotype of accessibility that creates places that are segregating, costly, and ugly.

Payette Associates used the Charles H. Giancarlo Engineering Laboratories at Brown University to create a visual signpost for the entire complex.

arbara Knecht is an architect and writer based in New York and Boston.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 250 and follow the instructions. For additional opportunities to receive Continuing Education credits, and to learn about important changes in AIA Continuing Education guidelines, go to our Web site at www.architecturalrecord.com, under Resources, then click on Continuing Education.

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Explain the difference between accessible design and universal design.*
2. *Describe the benefits of universal design.*
3. *Discuss examples of universal design in recent architectural projects.*

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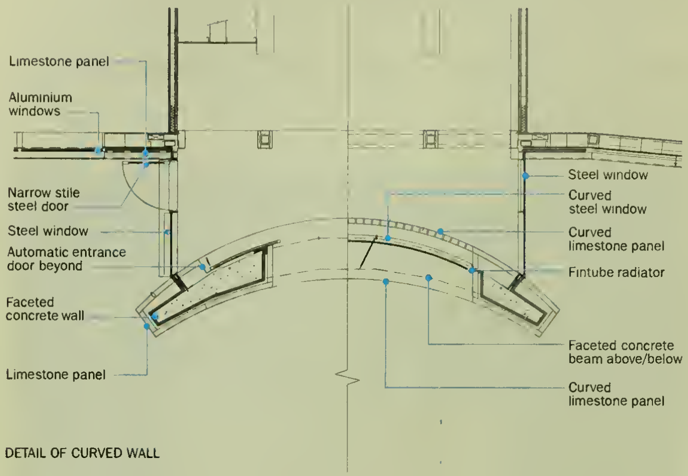


DETAIL OF CURVED WALL

Charles H. Giancarlo Engineering Labs, Brown University

An entry pavilion (right two) provides a visual focal point and organizing element for a large science complex. Payette Associates detailed the entrance so that everyone comes in through a curved, automatic, sliding door (this page, far right). A ramp (opposite) leads to new rooms, and natural light floods the concourse and penetrates the basement level.

Making accessibility invisible

It's possible to illustrate the seven principles of universal design with architectural examples. However, outstanding examples of universal design are so seamlessly integrated into the architectural solution that they are rarely noticed for their common characteristics. "The best projects are those where you don't notice the design challenge, be it a steep slope or accessibility," says James H. Collins, Jr., president of Boston-based Payette Associates. "If you approach something as a [design] 'problem' that you have to get around, then the resulting design highlights the problem and shows the solution. It says, look how clever the designer was to solve this difficult problem."

Payette Associates completed an addition to the Barus and Holley engineering complex at Brown University in 2001. The small project (18,000 square feet) provides for state-of-the-art engineering laboratories and classrooms. The new Charles H. Giancarlo Engineering Laboratories has produced a dramatic transformation of the complex. While the addition meets program requirements, it also rationalizes level changes between existing buildings and creates both a terminus and a connection to the campus pedestrian spine.

A 10-foot grade difference between the engineering complex, the campus walk, and an existing parking lot had resulted in a parking lo on the campus side of the building, a wide stairway to a blank wall, an an entrance on the side opposite the campus. The previous circulatio through the complex was accessible via a ramp and elevator; the ne solution qualifies as universal, because all users enter and move amon the buildings using the same circulation system.

The pavilion is entered from a grade-level plaza through a gran curved facade, the new terminus of Manning Walk, which is the ceremonia and functional campus axis. The elegance of the curved facade is repeate in a curved automatic sliding door, an example of universal design. With full 8-foot opening, it requires no "dance" at a swinging door as peopl decide who opens it or who goes first. Conversations continue uninterrupted; opposing traffic doesn't have to stop to allow others to pass first heavy wind pressure doesn't require extra strength to control the doors, an no special opening devices are needed for accessibility. Four hundre people pass seamlessly through the complex every day. The door simpl whooshes open as people approach and closes behind them, reminding u that good technology supports universally designed solutions.

Once inside the pavilion, all the new rooms are organized of the circulation ramp that bisects the new building and connects wit

The Seven Principles of Universal Design

The Principles of Universal Design were developed and copyrighted in 1997 by the Center for Universal Design at North Carolina State University in collaboration with a consortium of universal design researchers and practitioners. Funding for the project was provided by the U.S. Department of Education's National Institute on Disability and Rehabilitation Research.

Equitable Use: The design is useful and marketable to people with diverse abilities. Provides the same means of use for all users: identical whenever possible, equivalent when not; avoids segregating or stigmatizing any user; makes provisions for privacy, security, and safety equally available to all users; makes the design appealing to all users.

Flexibility in Use: The design accommodates a wide range of individual preferences and abilities. Provides choice in methods of use; accommodates left- or right-handed access and use; facilitates the user's accuracy and precision; provides adaptability to the user's pace.

Simple and Intuitive: The use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. Eliminates unnecessary complexity; is consistent with the user's expectations and intuition; accommodates a wide range of literacy and language skills; arranges information consistent with its importance; provides effective prompting and feedback during and after task completion.

Perceptible Information: The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities. Uses different modes for redundant presentation of essential information; maximizes legibility of essential information; differentiates elements in ways that can be described; provides compatibility with a variety of techniques or devices used by people with sensory limitation.

Tolerance for Errors: The design minimizes hazards and the adverse consequences of accidental or unintended actions. Arranges elements to minimize hazards and errors: The most used elements are the most accessible; hazardous elements are eliminated, isolated or shielded; provides warnings of hazards and errors; provides fail-safe features; discourages unconscious action in tasks that require vigilance.

Low Physical Effort: The design can be used efficiently and comfortably and with a minimum of fatigue; allows the user to maintain a neutral body position; uses reasonable operating forces; minimizes repetitive actions; minimizes sustained physical effort.

Size and Space for Approach and Use: Appropriate size and space is provided for approach, reach, manipulation, and use; provides a clear line of sight to important elements for any seated or standing user; makes the reach to all components comfortable for any seated or standing user; accommodates variations in hand and grip size; provides adequate space for the use of assistive devices or personal assistance.

e older buildings at four different levels. Windows into the new spaces nd glass sides on the ramp open light and views horizontally. Spaces djacent to the ramp permit light and views to penetrate vertically all e way from the clerestories at the top of the circulation "concourse" to e basement below it. The plaza at the entrance to the building, the ction in the labs, and the newly rational circulation have made a great ew place that, in Jim Collins's words, is "equally accessible to the poetry ajor and the math major."

omething for everyone

We never used the term 'universal design' during the design process," mments Janeann Upp, executive director of the Tacoma Art Museum TAM) in Washington [RECORD, August 2003, page 111], designed by ntoine Predock with Olson Sundberg Kundig Allen. "However, waynding was a major consideration throughout our discussions, along with redock's vision that the building retain some mystery as it unfolds." She ntinues, "I came from museums where people were always lost. You ill notice that we have virtually no signage, yet people return their useum maps unused."

TAM is a small building that features a grand processional ramp, inspired by nearby Mt. Ranier, as the major circulation spine. It wraps around an open-air stone garden, and the galleries wrap around the ramp. In the usual sequential course of viewing the galleries, one will naturally return to the central ramp and the garden to pass to the next gallery. There is also a diminutive stair along the exterior wall. It is tucked almost invisibly within the depth of the wall separating two galleries, in a clever reversal of the usual primacy of stairs. By featuring the ramp, there is an equality of movement through the galleries. "The only place that doesn't work that well is the last bit leading to the education wing," comments Upp. "People don't seem to know they can continue up there. We are working on using some art or perhaps some signage to draw them on."

To wander through a building with so little signage is a welcome relief. Museums are filled with first-time visitors, and the TAM administration has tested and monitored how the building has performed for them. Signage will remain in our lives, but in a truly universally designed world, millions of those little blue "handicap accessible" signs could be eliminated.

Airports face an even more complex challenge to move occasional users to their destinations easily. The consequences of being lost in a

Tacoma Art Museum, Washington

Without drawing attention to its universal design solutions, the museum features universal way-finding along a centrally located ramp (left). Galleries wrap around the ramp, relieving visitor dependence on maps and signage. Staircases (below left and right) are situated so as to play a minor role in the circulation scheme. Natural light pours in through large windows to illuminate the ramp and reveal the galleries below grade.

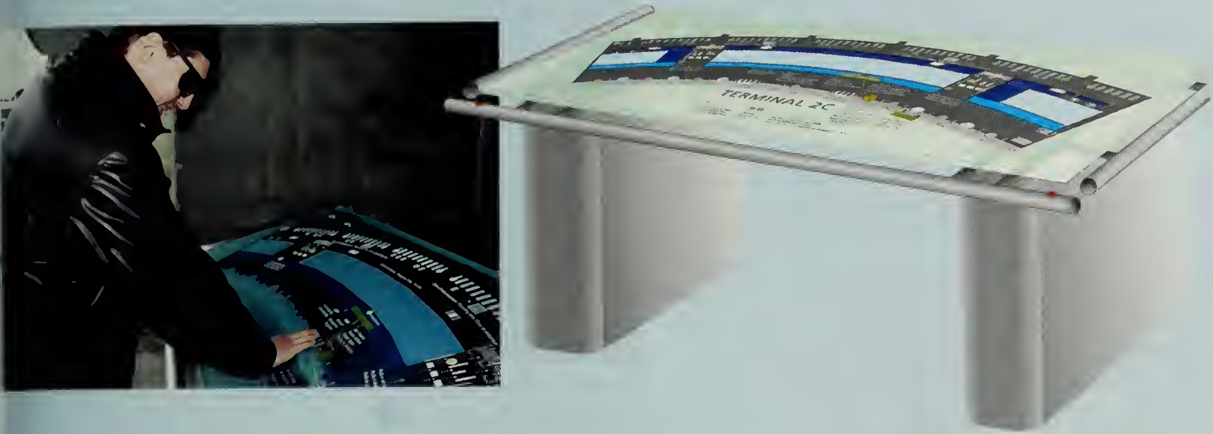
museum are minor; being lost and confused in an airport is another matter. Boston-based Coco Raynes Associates has developed a way-finding system for the Charles de Gaulle Airport's Terminal 2C. The terminal installation was completed in 2002, using products designed more than 10 years ago by Coco Raynes, the firm's principal. The beauty of Raynes's solution is that it has many applications: It can be adapted for existing non–universally designed environments. "Gérard Besson, chief architect of the airport, chose our system because it could be retrofitted into existing construction as well as used in new construction," explained Raynes.

The problem to solve was, in fact, specifically related to accessibility, but the solution is an invention that plays to a broad section of users. Passengers are dropped off at one location at the terminal. Those who need help with checking in and boarding must find their way from this drop-off to a cantankerous revolving door and through the terminal to a reception area where they can request an escort.

Raynes's solution begins with a tactile, audio, and visual map at the drop-off point. It offers detailed instructions in all three means (tactile, aural, and visual) and three languages for users to find their way along the airport sidewalk—explaining how to manipulate the speed of the door, if necessary—and tells them where they will find the next information station along the route to their destination.

The map is a 6½-foot glass panel mounted horizontally at slight angle and a height that is comfortable for viewing and touchin The panel shows the whole building, including services and amenitie in a diagram so that people can orient themselves within the termina Its messages are reinforced specifically for people with low vision by bright yellow rail, the Raynes Rail. This protects the map and provides place to lean, has instructions in braille along its edge and photosenso that activate the audio instructions. The same rail can be placed strategic points along a route to provide additional information or t reinforce a pathway with visual, audio, and tactile informatio Originally conceived for transportation systems, the rail has been use in museums in France and Colombia to explain exhibitions and dire movement. In Charles de Gaulle, way-finding is further enhanced b bright yellow "tac dots" embedded in the floor surface to help direct th passengers to their destinations.

The system has obvious advantages for people who don't spea the host country language or for any infrequent and first-time users. B providing an orientation at the airport entry, all passengers can quickl familiarize themselves with the layout before entering the terminal. Th desired sequence to check in, visit amenities and services, pass throug security, and reach gates can be planned without repeated help from airpo



Charles de Gaulle Airport, Paris

Boston-based Coco Raynes Associates proved that even one of the most complex building types, airports, can be designed to accommodate all visitors equally. A glass panel at the entrance (top left and right) provides information in tactile, aural, and visual formats. Yellow "tac dots" (right) guide visitors inside the terminal. A bright yellow rail (far right) provides instructions in braille and photosensors to trigger audio information.

personnel and confusing signs. The pathways and destinations can be checked and reinforced with the system, which is being designed into the new Terminal E at de Gaulle. According to Raynes, "The new system will follow the same pattern as the glass panel map at the drop-off. The railing segments will be used to direct passengers to restaurants and restrooms. The floor markings in the new terminal will be granite, however, in keeping with the architecture of the building." It's a modest system, capable of being implemented incrementally, with grand effect for many types of users.

Play therapy

Maneuvering through and using buildings is a primary focus for universal design, but the landscaped and urban environments are equally important. The Children's Play Garden at the New York University Howard A. Rusk Institute for Rehabilitation Medicine in New York City provides the neighborhood kids, as well as the ones living at the hospital, with an incredible variety of activities crammed into a tiny urban space. Children living in a rehabilitation hospital may seem unlikely candidates for an adventure-filled playground. The purpose of the garden is to be a place that inspires kids with disabilities to engage in activities that challenge them physically.

Sonja Johansson (formerly of Johansson and Walcavage), a landscape architect in Lincoln, Massachusetts, created the play garden for the Rusk children. "Indoors, even in bright and cheerful therapy rooms, exercises are part of treatment," explains Johansson. "By moving outdoors with grass and plants and the sky overhead, exercises that are 'therapy' when performed under direction within the hospital walls become 'play,' and the children will naturally do them again and again." Nature-oriented and interactive design may be therapeutic, but it is also complicated and enticing. The neighborhood kids flock to the garden because it has features that appeal to all levels of abilities: textures that are hard to walk over, four ways to climb to the top of the slide, water to play in, stones to move around, three kinds of swings to choose from, window boxes to plant, a grassy hill to roll down, a playhouse with chinning bars, structures that make noise, others that shine and catch sunlight. The hospital greenhouse program spills over to the children's garden by teaching them plant names and about growing plants and how to make and use compost. The variety keeps kids of all ages and abilities engaged. The universal appeal is obvious, and the benefit for all kids playing together and being challenged by the same environment is equally evident.

Universal design appears in many forms and any type of design situation, in small gestures and large ones. Academic-based institutes such as the Center for Universal Design at North Carolina State University (www.design.ncsu.edu/cud) and the Center for Inclusive Design and

Environmental Access (IDEA) at State University of New York at Buffalo (www.ap.buffalo.edu/IDEA) have been leaders and resources in universal design for a long time. Several municipalities have taken the lead to incorporate universal design into public and private design.

New York City, working with IDEA, developed a handbook (www.ap.buffalo.edu/IDEA/publications/publications.html) illustrated with specific examples. The City of Chicago's Mayor's Office for People with Disabilities advocates for universal design through education and outreach and by sponsoring two competitions (www.cityofchicago.org/Disabilities/). Internationally, London Mayor Ken Livingstone published *Accessible London: Achieving an Inclusive Environment* (ww.london.gov.uk/mayor/strategies/sds/spg_accessible_london/accessible_london.pdf), an exhaustive plan that will require all development proposals to include a statement showing how they have incorporated the principles of universal design.

Raynes, Payette, and Johansson are all 2003 recipients of awards from the first competition for universal design sponsored by Adaptive Environments (www.adaptiveenvironments.org), an international advocacy organization that is actively promoting universal design through education, technical assistance, and conferences. "Our goal is to draw attention to the principles of universal design in order to influence the performance of design for a wide range of users," explained Valerie Fletcher, the executive director. "This sort of thing can't be legislated. Design is influenced by trends that have nothing to do with laws. We want to draw attention to excellence and beauty in universal design and let that lead to shifts in design. It was important to us to limit our competition t built projects in order to showcase existing models."

Pediatric patients at the Rusk Institute's Children's Play Garden enjoy a challenging variety of activities.

Architects have practiced "sustainable" and "universal design since long before they became Sustainable Design an Universal Design. Energy efficiency and accessibility have made thei way into the codes. There will always be architects who doggedly mee the minimum prescribed standards, but the best examples of both wi continue to come from those who embrace the concepts, push th technology, and use them as a platform for invention. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Accessibility Regulations and a Universal Design Philosophy Inspire the Design Process" using the learning objectives provided.
- Complete the questions below, then fill in your answers (page 196).
- Fill out and submit the AIA/CES education reporting form (page 196) or download the form at www.architecturalrecord.com to receive one AIA learning unit.

QUESTIONS

1. Accessibility laws ensure access to designated buildings for all except which group?
 a. People in wheelchairs
 b. People who do not speak English
 c. People with visual impairments
 d. People with hearing impairments

2. Universal design approaches the design of the built environment with which group of people in mind?
 a. All people
 b. People with disabilities
 c. Elderly people
 d. People with visual and hearing impairments

3. Universal design, as opposed to basic accessibility compliance, is best described by which of the following?
 a. A model building code
 b. A mandate
 c. Adaptable design
 d. A worldwide movement

4. How many major laws has the federal government enacted that require public places to provide access to people with disabilities?
 a. One
 b. Two
 c. Three
 d. Four

5. Outstanding examples of universal design in architecture achieve accessibility in which way?
 a. Segregating the accessible path from the main path
 b. Highlighting the design challenge and solution
 c. Seamlessly integrating universal design principles into the building
 d. Using blue "handicap accessible" signs

6. A circulation path qualifies as universal when which occurs?
 a. Wheelchair users have an appropriate ramp close to the stairs
 b. All users enter and move along the same path
 c. Both elevators and escalators are provided
 d. The entrance door is a revolving door

7. Adaptive environment advocacy organization promotes universal design through all except which?
 a. Education
 b. Conferences and awards
 c. Technical assistance
 d. Promoting minimum code requirements

8. Why is a play garden good for a children's rehabilitation hospital?
 a. Exercise therapy becomes play in the garden
 b. The garden inspires patients to engage in play
 c. The variety of activities in the garden challenges the children
 d. All of the above

9. In the Tacoma Art Museum in Washington, very little signage is needed for what reason?
 a. A rail provides all the necessary information
 b. The stairway is the central feature
 c. Galleries are located off the circulation ramp
 d. Maps are provided for visitors

10. In the Charles de Gaulle Airport terminal, visitors can find their way using all the methods except which?
 a. A bright yellow rail
 b. A rail with instructions in braille
 c. Tac dots embedded in the floor
 d. A grand processional ramp

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In museums, no stodginess on display

3y Alan Joch

)nce upon a time, the design of a nuseum or exhibition took a back-;eat to its content. Today, design ; content, particularly when a nuseum's mission is to convey ıformation, rather than show ıbjects. "There is a blurring of dis-ınction between object, experience, ınd story. Visitors are interacting /ith ideas that have no physical resence," says Deborah Sussman, rincipal of Sussman/Prejza & ompany, exhibition consultants for ne planned Museum of the African iaspora in San Francisco, which /ill trace the dispersal of African eoples from the continent to other arts of the world.

For these projects, display echnology has come to play a cen-al role, and it has evolved to the oint where its hardware can recede ıto the background so that visitors re not only immersed in content ut can interact with it, as well. Two ecent projects in Los Angeles and ew York demonstrate different ays that designers are experiment-g with these capabilities.

mall thinking, big ideas

ne Los Angeles County Museum Art (LACMA) taps the energy of tists to create experimental exhi-tions in its Boone Children's allery. The latest effort, a 10-month exhibition called *nano* that opened in December, highlights the work of scientists who explore the world at the submicron level. "Our challenge was to convey the nano-scaled world without creating a corny version of *Honey, I Shrunk the Kids*," says Bob Sain, director of the LACMA Lab, the research and development arm of the museum.

Although the subject is at the cutting edge of scientific research, the museum wanted the exhibition's technological underpinnings hidden from view. "The whole idea was to not have any keyboards or monitors that were visible," says Victoria Vesna, a media artist who chairs the department of design's media arts program at UCLA, and who led the creation of the show's installations. "Instead, through a series of projectors and embedded sensors, the exhibits would come alive as people moved through the spaces."

In conceiving *nano*, a core group of artists, architects, and nano scientists achieved a level of collaboration that "blurred, blended, and swirled together" their talents, Sain says. The architect, Johnston Marklee & Associates in Los Angeles, participated in the show's first development meetings. "This gave us insight into how to conceptualize a very complex subject," recalls firm principal Sharon Johnston, AIA. Her partner, Mark Lee, adds, "Rather than just listening to a client's set of demands, we found we had to be quite assertive architecturally. We started presenting tangible ideas that the artists and the client could respond to," he says.

Johnston and Lee say the amorphous nature of the project was sometimes frustrating, but a breakthrough came when team members discovered a shared interest in Buckminster Fuller, particularly his spherical domes, epitomized by his Dymaxion House (now restored at the Henry Ford Museum in Dearborn, Michigan) and by the geodesic dome that came to symbolize Montreal's Expo 67. "We discovered a wonderful synthesis of architecture, media art, and science," Vesna says. "The exhibition became a kind of sculpture," she adds, in which physical space and content were so well integrated as to be inseparable.

While the architects responded to the symmetry and geometry of the dymaxion structures, the scientists were drawn to the relationships among the triangles, Lee says. "That's very different from the architectural standpoint, and it opened our eyes up in terms of how this all came together," he says.

The 10,000-square-foot exhibition space is housed in a former department store erected in 1929. Instead of open interior spaces, Johnston and Lee were faced with concrete support columns scattered throughout the floor. "We had to try to make this forest of columns disappear," Johnston says. The design evolved into a 1,000-square-foot central "cell" with a series of smaller cells connected to it. "We kept going back to this dymaxion concept as a structural idea," Johnston says. "We ended up with a double-walled cylinder of sorts that gave us a series of spaces where things could be hid-

The revamped Sony Wonder Technology Lab features a display wall (right in photo) that refracts and reflects light outside the lab so that it's visible to people in the adjacent atrium.

lan Joch is a technology and business riter based in New England. ontact him at ajoch@monad.net.

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den. At the end of the day, you don't see any computers," and few columns.

The central cell includes four projectors, suspended from the ceiling, that project images of the carbon molecule C60, a denizen of the nano world that its discoverers dubbed the Buckyball because of its structural similarities to Fuller's designs. As visitors pass between the projectors and the floor, their movements reshape the digital Buckyball images to simulate the physical interactions that take place in the nano space.

Johnston and Lee believe the experience of designing this show will change their work in the future. "This project was very challenging, even frustrating at times, but it gave us confidence that this way of working is possible," Lee says. "It generated a lot of ideas that we may not have conceived otherwise."

Gaming terminals in Sony's Wonder Technology Lab have sophisticated lighting, sound, and floor-vibration systems that respond to players' actions.

Moving into the new century

What does an electronics company do when its showpiece technology lab starts to show its age? For Sony Corporation, the answer was to renovate, to the tune of $4 million and months of brainstorming. Sony's four-story Wonder Technology Lab, designed by Ed Schlossberg, opened in New York City in 1994—an epoch ago measured in high-tech time. "We wanted to move from analog facility to digital facility," says Ann Morfogen, a Sony senior vice president. Sony also wanted to differentiate the renovation from a design perspective. "When the lab first opened, people were wowed by the physical language of technology—the wires, connections, and hardware," notes the project's architect, Lee H. Skolnick, FAIA, principal of Lee H. Skolnick Architecture + Design Partnership in New York. "It was a case of wearing technology on your sleeve."

In the renovation, which opened in October, the emphasis is instead on integrating technology into the physical design. "We wanted a look that was modern, cool, comfortable—and to forget about the hardware," Skolnick says. A team from Sony joined forces with Skolnick's group and an A/V systems integrator for six months of "creative interaction," Morfogen says. Josh Weisberg, principal of the systems integrator, Scharff Weisberg of Queens, joined the team early because the underlying A/V needs would be key to bringing the creative ideas to life. "We couldn't simply use consumer devices—we had to take the technology to the next level with sophisticated computer systems to handle all of this processing," Skolnick says. The majority of the computers run in a behind-the-scenes, 8-by-12-foot room where custom-designed controls automatically run digital-video servers and the lighting system.

Because it wanted to emphasize the "magic" of technology, the design group eschewed monitors and keyboards in favor of wall-size video projections, vibrating floors, and sensor-activated instruments that place visitors within the exhibits, Weisberg says.

Visitors to LACMA's *nano* play with supersize images of molecules called Buckyballs, named for their resemblance to Buckminster Fuller's domes.

For example, the games exhibit isn't merely an arcade to display the latest and greatest video systems—instead, visitors find themselves immersed in a game thanks to A/V technology such as directional sound and large-screen monitors. A related exhibit lets visitors create a racetrack and cars for their own auto racing game. This "activated environment," Skolnick says, relies on modulated lighting and video images that move across the floors. A curved wall stretches throughout the renovated second-floor space to act as a common design element, tying the exhibits together. Made of a custom lenticular material, the wall's surface ridges are molded at various angles that refract the changing color patterns shining through from behind the wall. "As you move through the lab, the visuals on the wall change," Skolnick explains. "We developed a color palette for the entire space, and you see all of those colors on the wall." Skolnick worked with a British supplier to produce the material in large, wall-size sheets, rather than the small panels typically manufactured for toys and advertising trinkets. "Using the material on this scale, as an environmental element was a new thing," Skolnick says.

FOR MUSEUMS THAT FOCUS ON CONTENT, DISPLAY TECHNOLOGY HELPS THEIR EXHIBITIONS STAY FRESH.

Another challenge was how to use the open, skylit atrium space adjacent to the lab to attract attention. "We wanted people in the atrium to see how visitors in the lab were empowered to do exciting things," says Skolnick. The design team created a video montage, using real-time, live-action scenes from inside the lab, and a bay window in the atrium as a large projection screen. To cut down on glare and reflections, they treated the window with a self-adhesive, high-gain acrylic film that provides a surface opaque enough to display the images, but translucent enough to let light pass through.

For Skolnick, whose company has been designing interactive exhibits for 20 years, the lesson of this project is that design and technology will continue to become ever more intertwined. "It's not about people just pushing buttons, but rather, it's creating more natural interfaces to bridge architecture and technology and make them one." ■

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Residential

Lofts: The home of choice reaches new heights in New York City's urban landscape

BRIEFS

Farnsworth House saved
Thanks to a last-minute whirl of fund-raising, preservation groups purchased Mies van der Rohe's legendary Farnsworth House on Friday, December 12, 2003, at a Sotheby's auction in New York City, saving the house from possible relocation. The purchasing group, which included the National Trust for Historic Preservation, the Landmarks Preservation Council of Illinois, and the Friends of the Farnsworth House, paid $7.5 million for the rectangular glass house, located in Plano, Illinois, and regarded as one of the masterpieces of Modernism. The groups had feared potential buyers might change the house, close it to visitors, or even move it. Two days before the auction, the group had raised only $3.6 million, but a feverish round of appeals for support more than doubled that total by auction time. Says Richard Moe, president of the National Trust, "We are thrilled that it will be protected forever and made available to the public, particularly to architects and students of architecture." *Sam Lubell*

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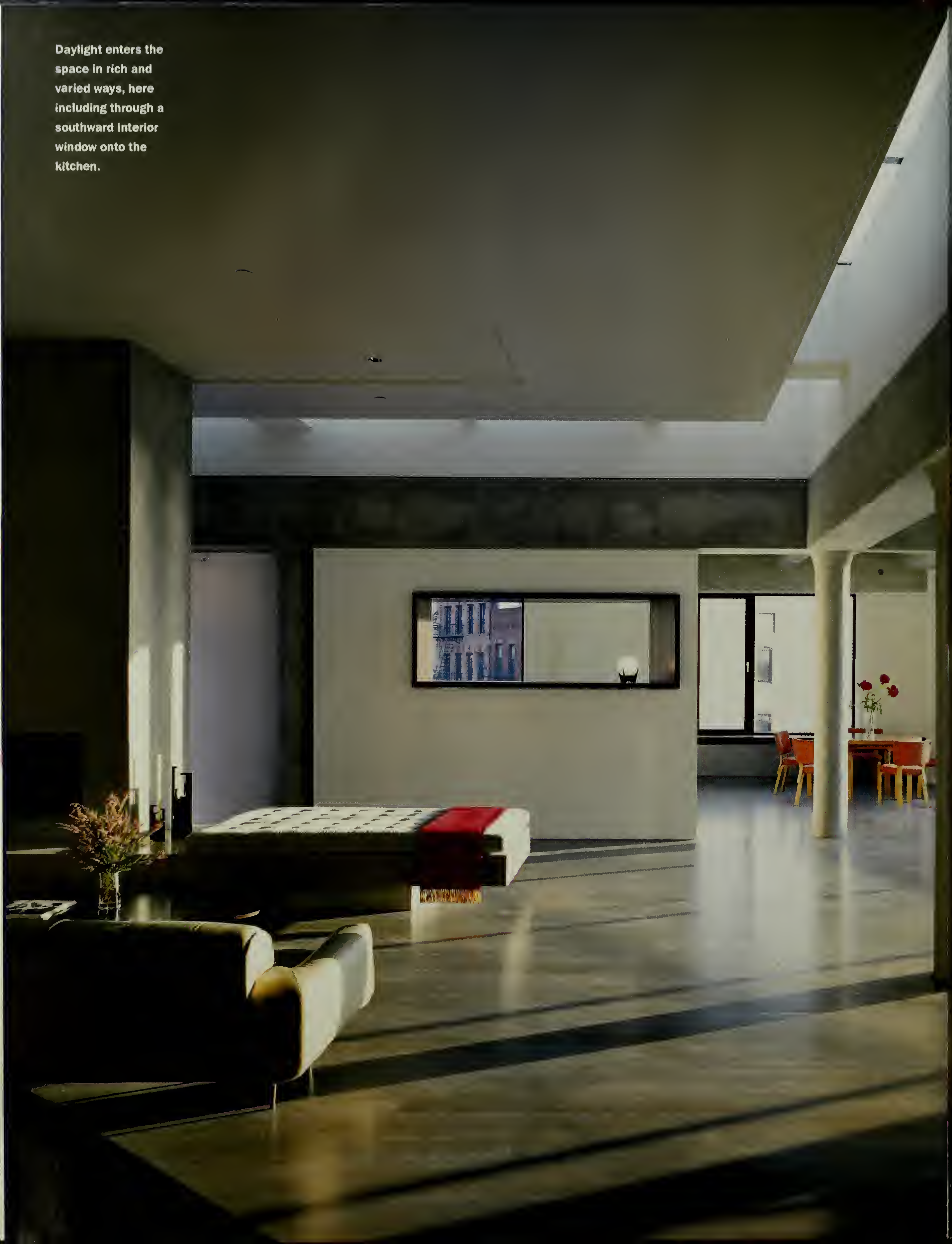
CEDIA Review, by Rebecca Day

Live/work takes a front seat on Front Street The live/work trend has come full circle at Front Street, a Ladera Ranch, California, neighborhood, where home-based businesses have become the basis for design. Bassenian/Lagoni Architects designed this 4,000-acre community to accommodate at-home businesses that couple easily with residential living. Work zones are separate from housing zones, so that privacy remains a key priority and owners observe mutually agreed upon bylaws for their businesses.

First step housing reaches out to the homeless A New York City design competition hosted by Common Ground and the Architectural League announced five winners out of 180 submissions from 13 countries. "In this competition, architects reinvent the traditional lodging house, designing private, safe, clean, and affordable transitional accommodations to those in need," says Common Ground president Rosanne Haggerty. For more information, visit www.commonground.org.

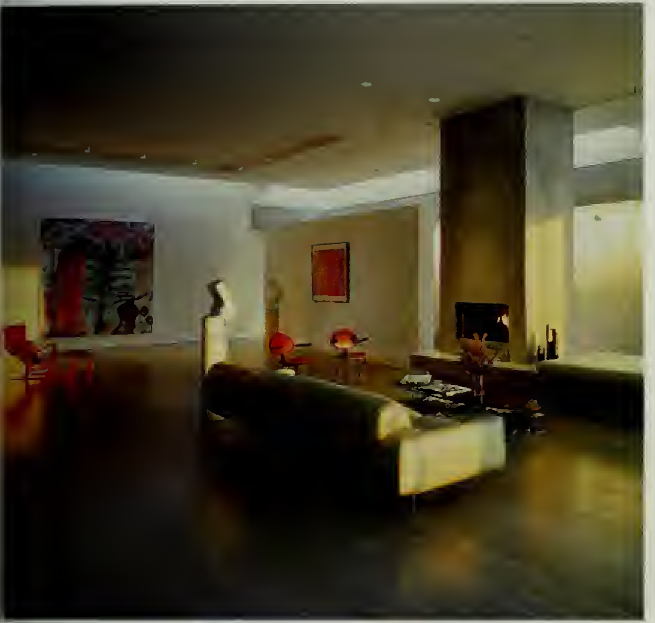
Shipping containers conceived as basic building unit Using the abundant supply of empty shipping containers for the built environment is not a new idea; indeed, LOT/EK [RECORD, September 2003, page 131], the Office of Mobile Design [RECORD, October 2001, page 71], and others have done it. However, Fox & Fowle, New York City, developed a design for an industrial site in central Gloucester, Massachusetts, on a scale unprecedented until now. About 3,000 containers were proposed in the design, which includes 351 duplex loft housing units consisting of four containers each, a hotel, a civic/cultural center, and parking.

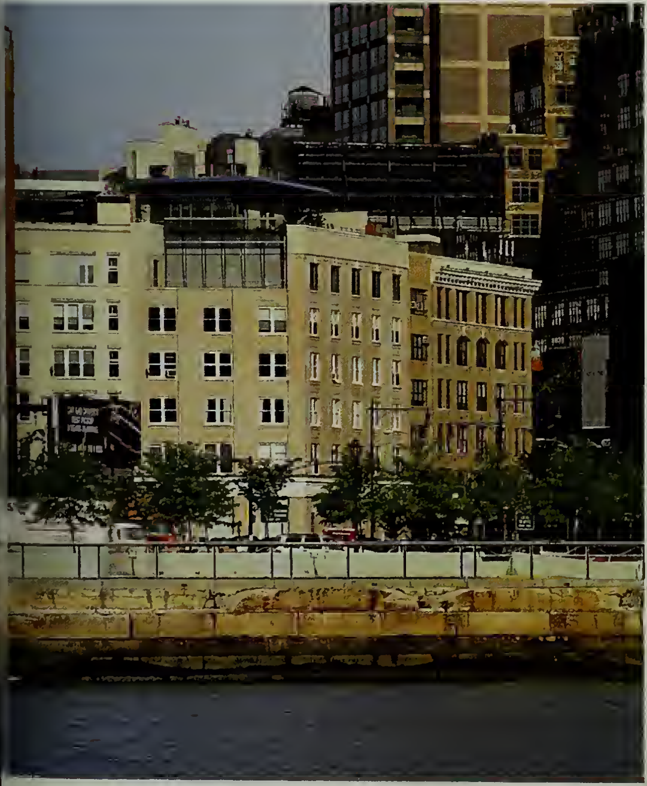
New York City has the lion's share of loft living spaces. Some have soaring Italianate windows and cast-iron detailing. Others look like warehouses with loading docks, freight elevators, exposed functional elements, and graffiti-stained front doors. Loft living is less bohemian, more bourgeois than it once was, and increasingly difficult to stereotype. Loft buildings can be new as well as retrofits. They feature flexible spaces, open-plan configurations, and often working studios. In short, they offer a blank tablet for occupants to inscribe with their own ideal of residential comfort. Even the National Association of Home Builders is featuring the loft as the "new American Home of 2004" at its annual convention, the largest gathering of home builders in the U.S., this month. We are pleased, since lofts provide an endlessly variable opportunity for design. Here are a few examples to whet your appetite. *Jane F. Kolleeny*



Daylight enters the space in rich and varied ways, here including through a southward interior window onto the kitchen.

Setting a rooftop pavilion in a field of beach grass, Rogers Marvel creates its duplex **Penthouse Loft**





For the main living space, the architects removed two columns, raised the roof, and created a recessed perimeter skylight (top). Because the building wasn't landmarked, they could excise a piece of the facade and insert a canted glass section (left).

By Sarah Amelar

"A desire to break out of the confines of the space" sparked the design of the Penthouse Loft, recalls its project architect Alissa Bucher, an associate at Rogers Marvel Architects in New York City. Even from the street, six stories below, the duplex aerie appears busting out of its early-20th-century shell. The apartment's canted glass-and-steel facade ruptures the sober vertical planes of its tawny brick, downtown Manhattan building, a structure originally erected for light industry. In approaching the design, says Bucher, "We needed to find ways to experience the amazing view—not just from beside a window."

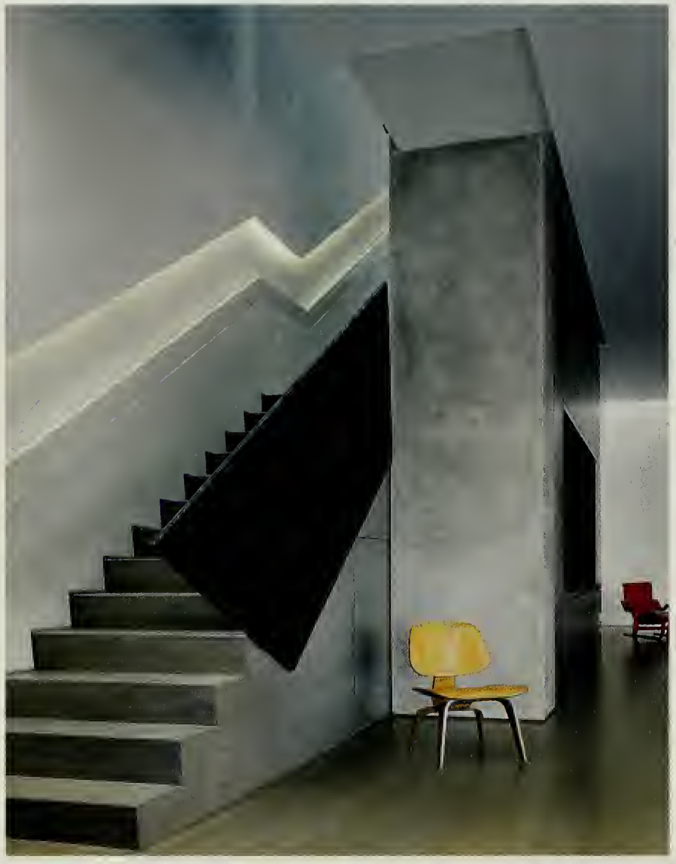
And a spectacular view it is, right on axis with a pier that juts into the Hudson River, curving toward a panoramic New Jersey skyline across the water. A landscaped park, slated for the triangular lot between the building and river, assures that these sight lines will remain unobstructed.

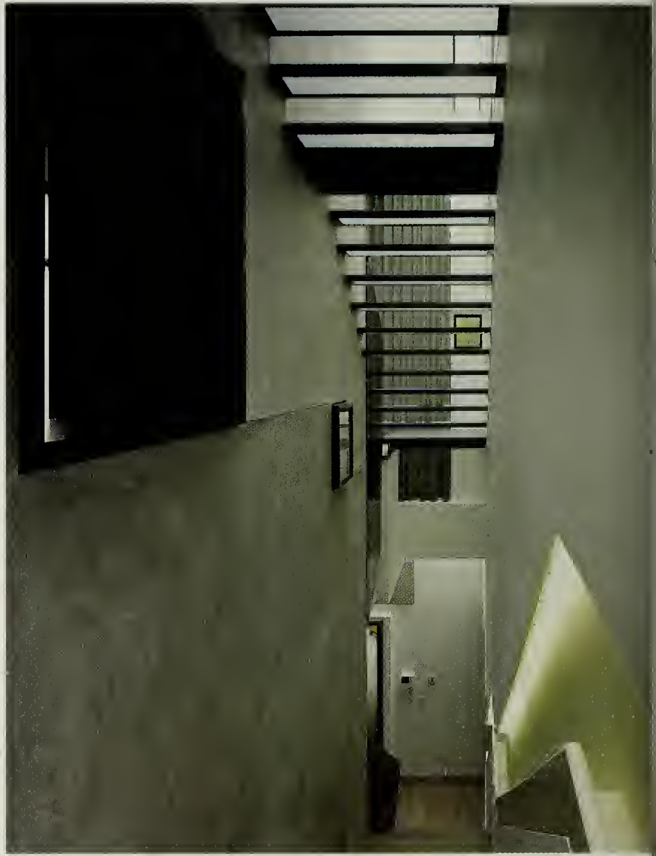
But the loft's original proportions were hardly worthy of such urban grandeur. With oppressively low ceilings and a multitude of structural columns, the raw space tended to feel cramped and dark, rather than expansive and luminous. Nonetheless, the potential of creating a large downtown penthouse with river views inspired the client to purchase the property—and ultimately take the radical steps of raising the roof, removing two central columns, and adding an upper story with decks. The 5,500-square-foot flat with no exterior space would become a 6,800-square-foot duplex with terraces totaling an additional 3,350 square feet on three floors (including the rooftop).

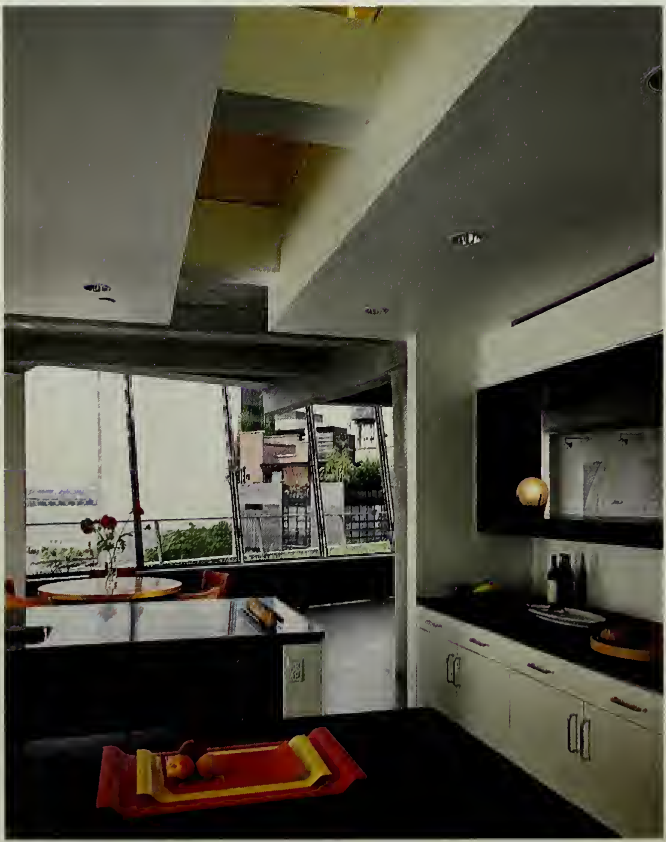
This unusually ambitious transformation was clearly the project of an equally unusual client. Roger Hollander, a single Minnesotan in his 60s, approached the endeavor with an understanding of art and architecture, as well as an adventuresome spirit and the necessary funds. He'd studied architecture in college and "already spoke our language," says Bucher. "Here was a client seriously interested in doing a project *about* architecture—he really challenged us to do the unexpected."

After selling a family business in the Midwest, Hollander has focused on collecting antique Silk Road trading textiles and mid-20th-century Modernist furniture. The objects influenced Rogers Marvel as much as the views. "The collection is full of individual, eclectic, colorful

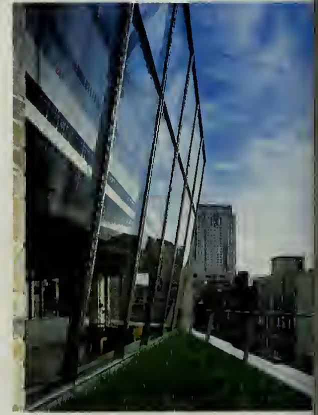
Project: *Penthouse Loft, N.Y.C.*
Architect: *Rogers Marvel Architects—Rob Rogers, AIA, Jonathan Marvel, AIA, partners in charge; Alissa Bucher, AIA, project architect; Mark Nye, Emma Morris, Mike Jacobs, Aaron Young, project team*
Architect of record: *Alexandr Neratoff*
Engineers: *Ross Dalland (structural); P.A. Collins (mechanical)*
Landscape architects: *Dirtworks*
General contractor: *James Lee Construction; Higher Ground (landscape)*







The solid ipe wood stair rises (top left) to open, translucent glass treads (top right). The kitchen and living areas share river views through a facade of canted glass (left). Just outside this glazing (right) grows a triangular "field" of beach grass.



pieces that don't necessarily go together," explains Bucher. "So we tried to accommodate the variety, rather than impose controls." The strategy was to create a relatively neutral backdrop of earth tones—concrete ceilings and gray plaster walls-
along with simple, warm white walls. Equally important was the modulati
of daylight—key to reconciling the needs of delicate, sun-sensitive textil
with the desire to open the loft to the outside and enhance its visual co
nection with the river.

Now the interior leans out toward the water literally and figur
tively. The canted, steel-mullioned plane of glass that is visible from the stre
below has replaced much of the loft's original west wall. Just outside the gla
ing, a patch of seemingly wild beach grass, set in a triangular planting be
mediates between foreground and distance—as if the loft were nestled in
dune overlooking the water. Rugged salt-and-sea metaphors continue on th
upper level with outdoor decks of seasoned ipe wood and several varieties
tall grasses. The architects have ushered in sunlight from the west (but eve
here, only through triple-layered, UV-filtering panes), while also providi

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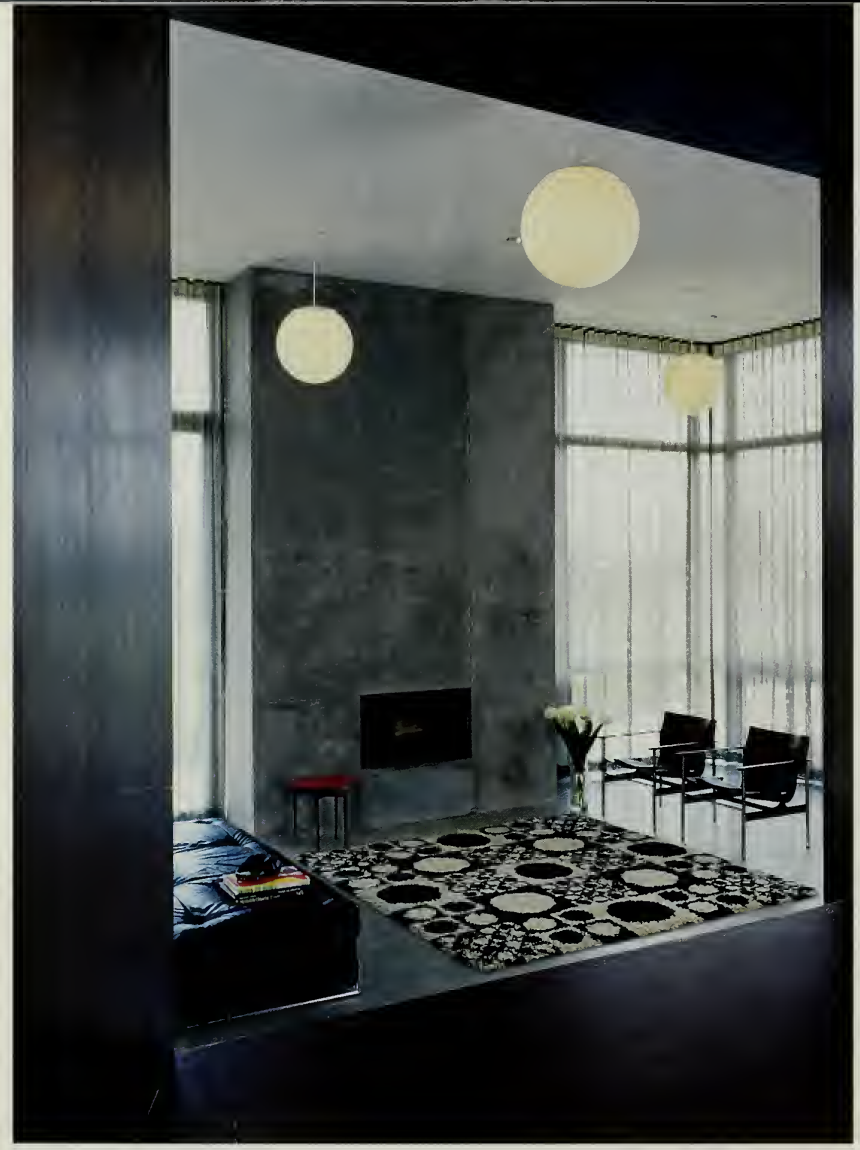
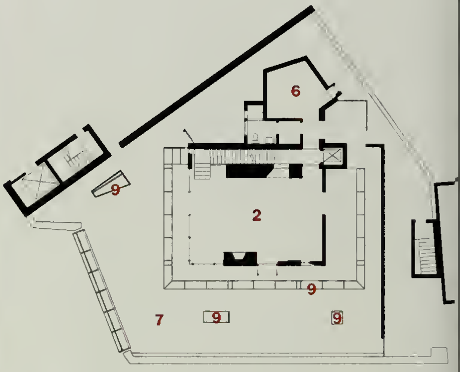
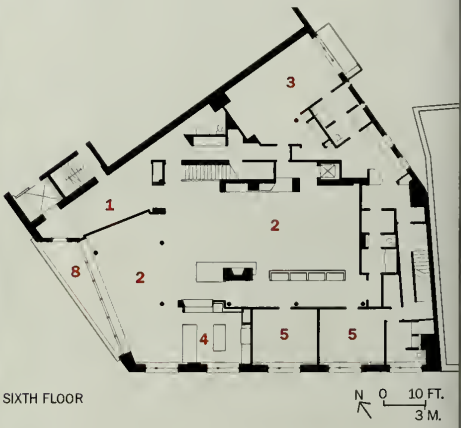


Sheer curtains filter out glare while leaving the glassy penthouse pavilion (left) open to spectacular urban views. A deep overhang shades the glass from the exterior.

1. *Foyer*
2. *Living/galler*
3. *Master suite*
4. *Kitchen*
5. *Bedroom*
6. *Study*
7. *Terrace*
8. *Planter*
9. *Skylight*



PENTHOUSE FLOOR



SIXTH FLOOR

for areas of gentler illumination. Overcoming the typical loft problem of a daylight-deficient core, Rogers Marvel not only removed the two structural columns but also created a recessed perimeter skylight that hovers like a softly glowing halo over the main living space, on the loft's original level. This translucent, laminated-glass perimeter strip marks the edge where Rogers Marvel excised a 1,344-square-foot section of the existing concrete roof slab and replaced it with a new slab, raised more than 4 feet (and supported on new steel transfer beams). Amid the "dunes" and "meadows" of the decks above, this flat skylight does double duty as pavers, and three more lanternlike pop-ups from this floor appear as landscape elements.

From the main living areas and master suite on the loft's entry level, stairs and a private elevator rise to a glazed, jewel-like penthouse pavilion, housing a second living room or den with an adjacent study and, one flight up, to a roof terrace with a wet bar. The stair morphs as it ascends, with solid ipe giving way to open, translucent glass treads, glowing beneath a linear skylight. Just as the stair dematerializes visually toward the top, the glassy pavilion, surrounded by outdoor decks, reverses the figure-ground relationship of the floor beneath it.

At the pavilion-level terrace, the canted glass facade rises to become a parapet and railing. Reminiscent of an air-traffic controller perch, this angled glass expands the cone of vision, yielding dramati almost dizzying views down to heavily trafficked streets and the rive But from other vantage points, the decks take on a floating quality th virtually obliterates the gritty middle ground, flirting with the pur illusion of a sunny, windswept beachscape.

Collaborating with Dirtworks landscape architects, Rogers Marv created and seized a rare opportunity to integrate an urban interior with localized landscape and a larger panorama. Here, the swatches of meado are both metaphorical and skillfully man-made. Concurrent with this pro ect, however, the architects took on nearly the reverse exercise for the sam client: building a house in central Wyoming, where truly untamed terrai was the starting point. ■

Sources

Curtain wall: *Proclad*

Exterior finish, insulation: *Dryvit*

Skylight, pavers: *Figla USA*

Lighting: *LiteLab; Lightolier; Lutron*

Paint: *Benjamin Moore*

Hardware: *Stanley; Rixson; Colonia Omnia*

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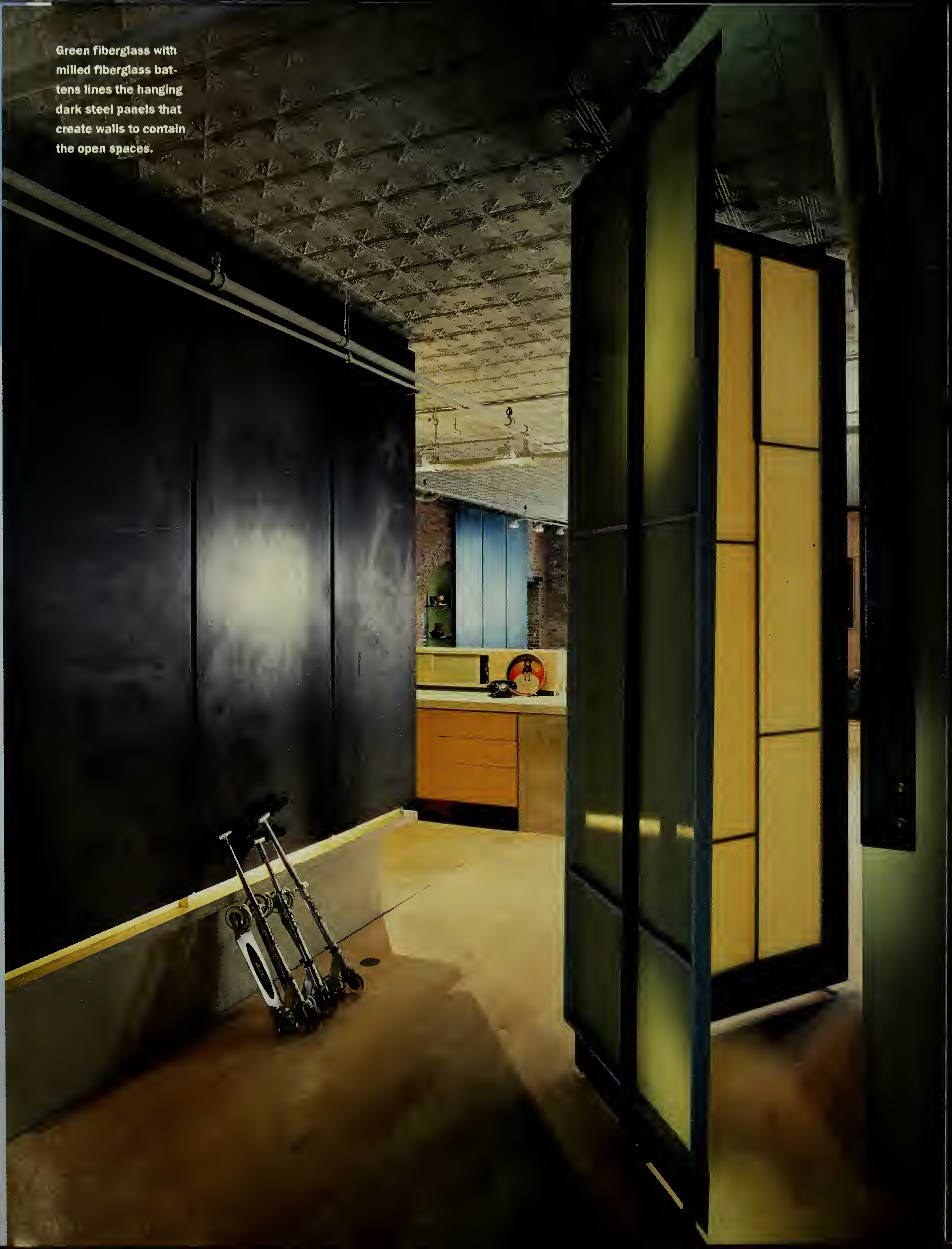
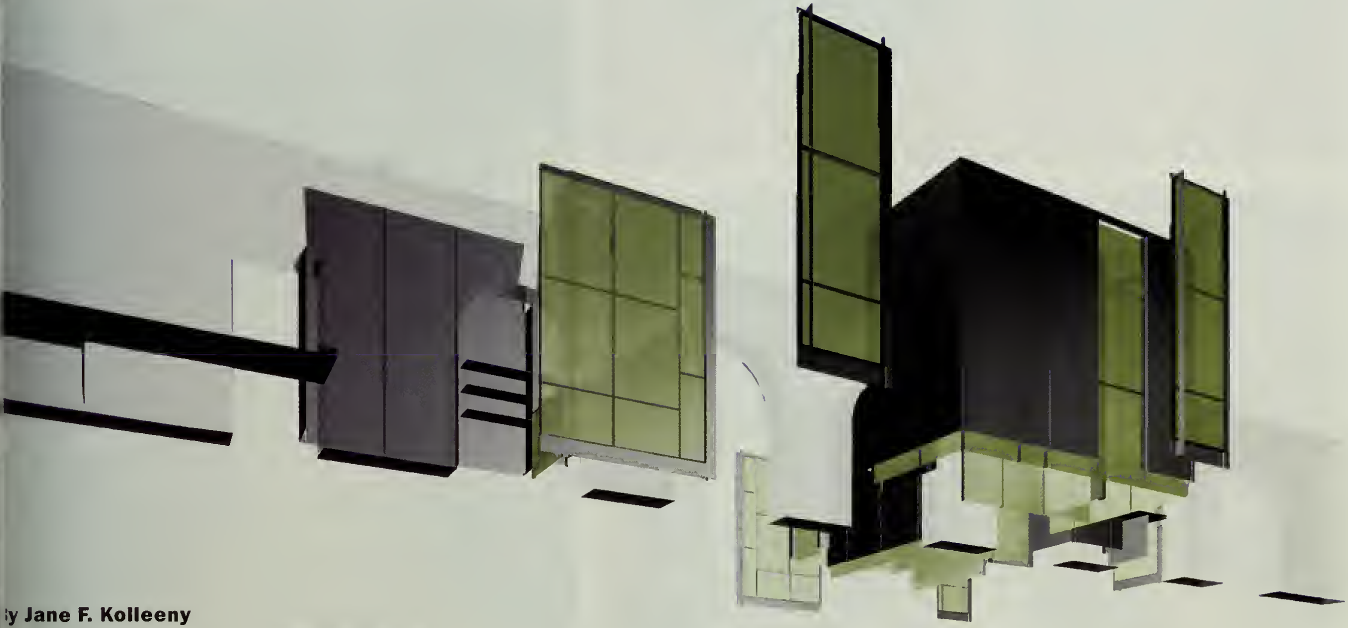
Green fiberglass with milled fiberglass battens lines the hanging dark steel panels that create walls to contain the open spaces.



ean/Wolf Architects blends one owner's love of stuff with he other's need for space in the **Double-Weave Loft**



y **Jane F. Kolleeny**

The plan above shows the two interwoven partition walls in relation to the arched brick wall, which define the various spaces of the loft.

In Tribeca, a neighborhood in Lower Manhattan sprinkled with art galleries, industrial buildings, and trendy restaurants, a third-floor live/work loft sprang out of a prewar building's industrial trappings. Most of the area's lots and loft buildings from this period ere designed to be 25 feet wide; this loft was double the size, with a ough and earthy redbrick bearing wall slicing it down the middle. This all, pierced by round arches, serves as the central spine of the space and perfect focal point for combining the opposing tastes of the owners. It lso joins the two sides of the interior programmatically and aesthetically.

Before design, architect Kathryn Dean had given her new clients homework assignment: Find pictures showing the environment they ould love to live in. This artist and musician duo (who have a teenage on) responded with distinct and dissimilar images; his pictures featured utter and collections of knickknacks, hers were austere and full of voids. hus began the perfect start to a harmony of opposites. "Her 'too monasc taste' and his 'too low-brow taste' needed a reciprocal reconciliation," ys Dean. Fortunately, the owners both agreed to keeping the original olded-tin ceiling, now painted a light gray-green.

Sometimes, the balance of opposites results in more than the um of its parts. Here, the design celebrates point/counterpoint, as mateals and programmatic elements resulted in a series of planes that tersect and play off the center wall. Called Double-Weave Loft, its name derived from the central spine of brick arches serving as a loom for two nes of partition walls that weave together to create the labyrinthine aces and define the individual areas within (see drawing above). The rst material line is composed of formed steel panels on one side, with erglass on the other side, which are suspended from the original wareouse structure. The second material plane comprises cement boards standing on steel tees and lined with maple plywood cabinets that "contain multiple cubbyholes or pockets for displaying the myriad objects of a lifetime of collecting," remarks the architect. The partitions interweave around the central defining brick wall, creating a master bedroom, a bedroom and a separate playroom for the owners' son, two studios, a large living room/dining room, a kitchen, two baths, and ample storage areas. They fold and unfold together and away from each other, articulating these interior spaces. Conceived as a spatial democracy, this loft treats everyone in the family equally—each has work or play areas of their own. The oversize doors open and close like switches, allowing the interior to be reconfigured and privatized, changing its tone and sometimes creating views extending the length of the loft.

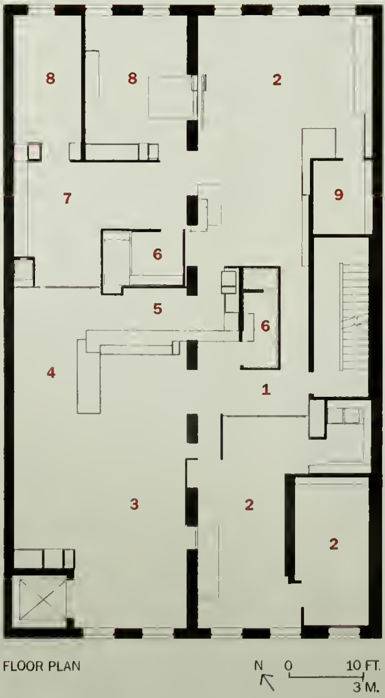
Details in the loft blend seamlessly into the overall aesthetic. The ceiling grid established by the exposed sprinklers and pipes provided Dean with a natural matrix on which to weave the circuitry of a suspended lighting system. Utilitarian steel gears bought from funky Canal Street stores became light switches on dimmers. Ample custom built-in cabinets in the bedrooms, bathrooms, and storage areas that are irregular in volume and size provoke interest. The hefty horizontal radiator pipes

---

Project: *Double-Weave Loft*
Location: *Tribeca, N.Y.C.*
Architect: *Dean/Wolf Architects—Kathryn Dean and Charles Wolf, partners in charge; Karel Klein, project architect; Mike Jacobs, construction supervision and presentation drawings*
General contractor: *Bando Construction*

The building is two lots wide separated by the arched bearing wall (below). The large living room/dining room is austere in its simplicity (top left). The kitchen rests like a cozy hearth tucked inside one of the bric arches (background, below left).

1. *Entry*
2. *Studio*
3. *Living room*
4. *Dining room*
5. *Kitchen*
6. *Bath*
7. *Playroom*
8. *Bedroom*
9. *Storage*



FLOOR PLAN

have been stripped of 50 years of accumulated paint layers down to t original dark steel. Nearby window frames are also finished in steel an blend nicely. Much of the brick bearing wall was cleaned of plaster an paint to reveal the original rough material underneath. With such labo intensive efforts and custom work, it is hard to believe this loft w designed for a mere $80 per square foot, especially in New York.

The cozy hearth of the kitchen is tucked masterfully into pocket created within the brick arches. The maple cabinetry and precas concrete countertop of the kitchen define its edge. A plywood laminat dining table extends into the public living/dining room, the largest ar in the loft, which represents "the center of family life," says Dean. He the owners casually display some of their unusual and interesti "found" art. The overall feel of the loft resounds with symmetry a asymmetry. The yin and the yang of the owners' diverse sensibiliti come together in materials and program, producing a perfect haven f creativity and contemplation. ■

Sources

Concrete bath fixtures: *Get Real*

Fiberglass panels and splines: *Ryertex*

Metal wall panels: *Bando Construction*

Cabinetry: *Bando Construction*

Cast-in-place concrete floor and knee wall: *Bando Construction*

Glass tile inserts: *Bisazzo Tile*

Lights: *Rab Fixtures*

Faucets: *Dornbracht Faucets*

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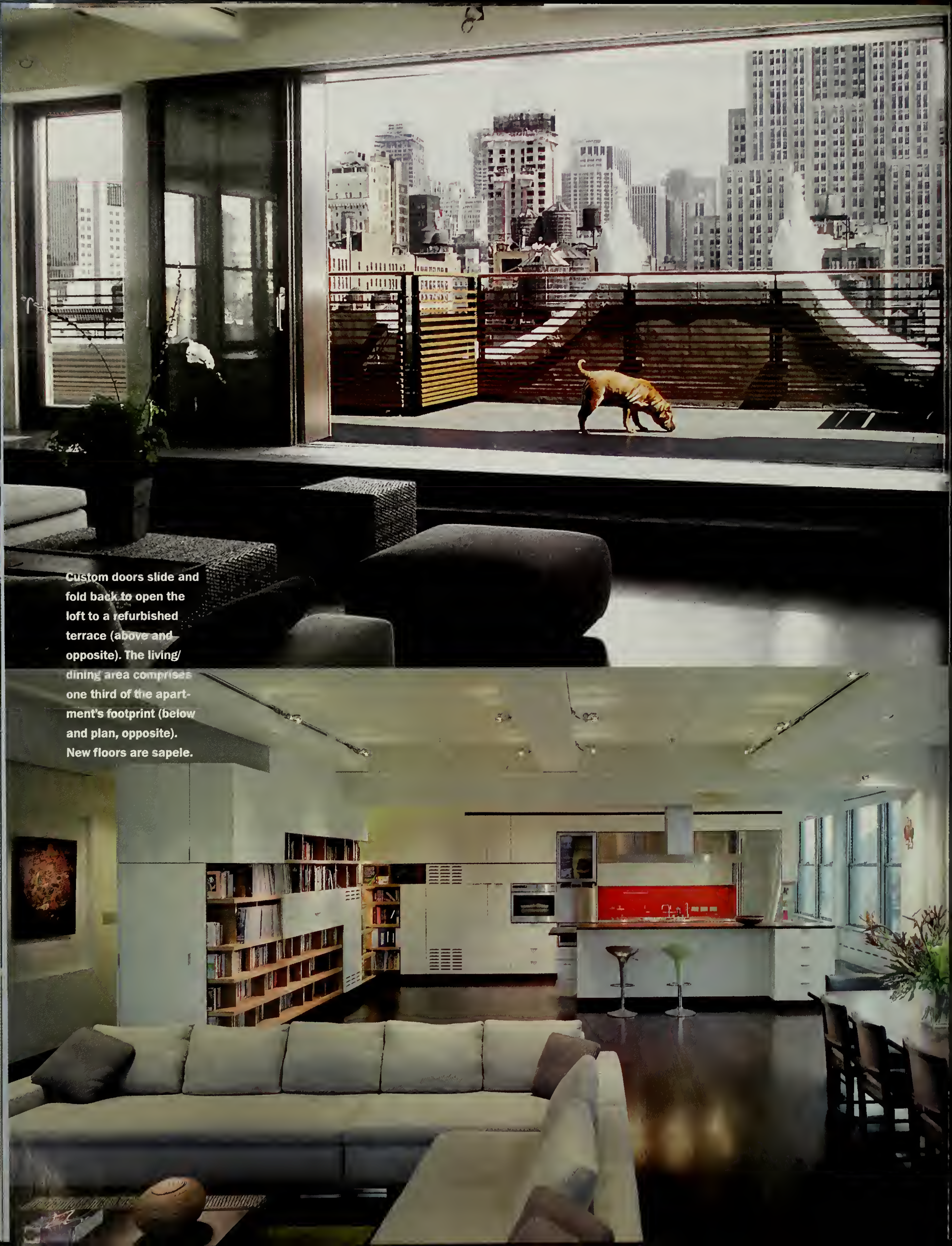
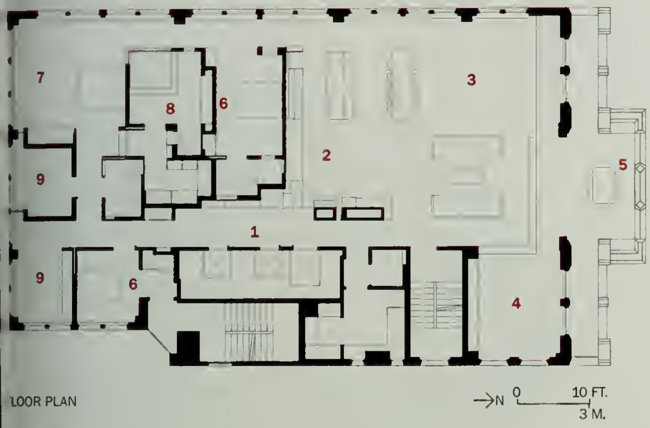


Custom doors slide and fold back to open the loft to a refurbished terrace (above and opposite). The living/dining area comprises one third of the apartment's footprint (below and plan, opposite). New floors are sapele.

With views in four directions, a **Fifth Avenue Loft** keeps the perimeter free for circulation around a central core

By William Weathersby, Jr.



LOOR PLAN

1. *Entry*
2. *Kitchen*
3. *Living/dining*
4. *Sitting room*
5. *Terrace*
6. *Bedroom*
7. *Master bedroom*
8. *Master bathroom*
9. *Study*

A 4,000-square-foot penthouse apartment on lower Fifth Avenue with views in four directions, including a terrace overlooking the Empire State Building, certainly qualifies as prime Manhattan real estate. But achieving an open, loftlike space while accommodating a fully loaded program of three bedrooms, three baths, and two studies took considerable vision on the part of the clients, a young professional couple, and Murphy Burnham & Buttrick architects. Occupying the 15th floor of a 1920s industrial building that rises above most neighboring structures in the district near Madison Square Park, the space was previously a cluttered, compartmentalized music-recording studio devoid of architectural details.

"The interiors of the recording studio worked in opposition to the views," recalls architect Mary Burnham, "with a warren of rooms covered by sound-barrier insulation more than a foot thick in places. It was a very inward-looking environment, because of the intimate nature of the business." As they peered out the partially obstructed windows on the first day they toured the space, however, the owners knew they had discovered a diamond in the rough as a cooperative apartment.

Once interior partitions and dropped ceilings were demolished, the resulting space was nearly column-free, with large windows on all sides letting in daylight. A new dark-stained sapele floor was added, and plaster walls were patched but left with the patina of age to establish a neutral envelope. New HVAC was contained in streamlined soffits, yielding ceiling heights of 9 to 10 feet featuring recessed and track lighting.

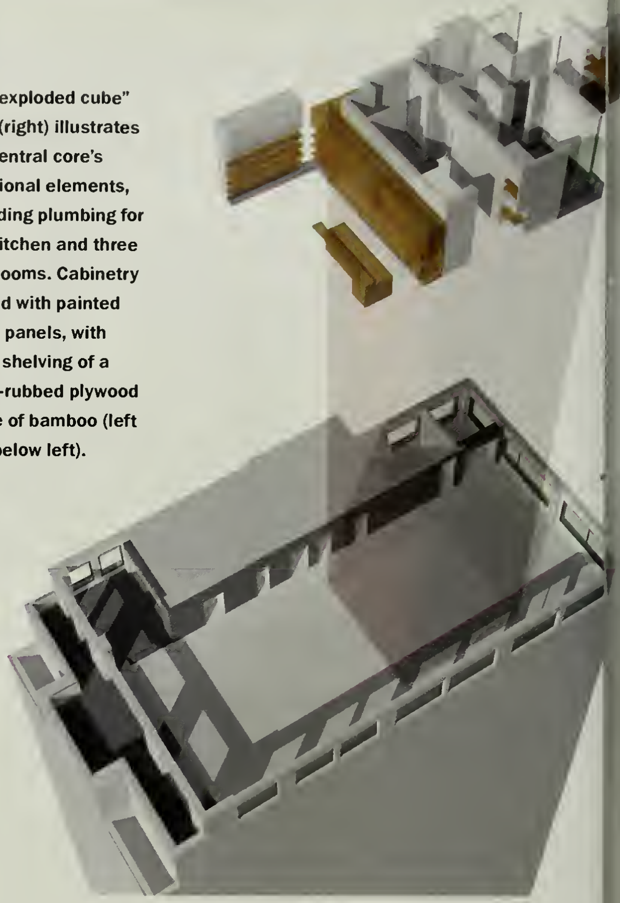
In response to the views—from Midtown skyscrapers to rooftop gardens and water tanks—the architects decided to place all new interior walls away from the perimeter of the footprint to allow for open sight lines and ease of circulation. Approximately 1,100 square feet of space was left unobstructed as a combined living and dining area set between the open kitchen and the terrace at the north end.

Most storage and utility functions, including kitchen and bathroom plumbing and electrical, are concentrated in a central cube. Occupying about a third of the loft's footprint, "the cube functions as a highly defined and detailed box," Burnham says. "We could have eaten up more space with the program, but we wanted to fit the service elements together like pieces of a tight puzzle."

Clad with white-painted wood panels, the cube is exploded and stretched in plan and elevation to further define space. Elements such as library shelves, art display niches, a stone whirlpool tub, and custom storage units pinwheel out from the structure's center point. A bar, kitchen

Project: *Fifth Avenue Loft, New York City*
Architect: *Murphy Burnham & Buttrick—Mary Burnham, AIA, partner in charge; Bogue, Trondowski, project architect; Rachel Lehn, Amy Nicholson, project team*
Engineer: *Hage Engineering (structural); D'Antonio Consulting Engineers (mechanical)*
General contractor: *Sweeney + Conroy*

The "exploded cube" view (right) illustrates the central core's functional elements, including plumbing for the kitchen and three bathrooms. Cabinetry is clad with painted wood panels, with open shelving of a hand-rubbed plywood made of bamboo (left and below left).



pantry, and an audiovisual center are among the many custom-fitted el
ments tucked behind the panels. Niches and corners of the white core a
pulled away to reveal shelving and a pull-down desk constructed of han
rubbed plyboo, a plywood made of bamboo. Closets and drawers slid
open to display detailing with the same wood. "The material palette of th
cube was limited to the painted panels or plyboo to enhance its sculptur
quality," Burnham notes. (A planned enhancement calls for replacing th
painted panels with milky translucent Plexiglas.) "Conceptually, w
wanted to deconstruct the cube to reveal parts of its interior functions

Glass-sheathed perforations and clerestories punched into th
perimeter of the cube allow light into interior enclosures such as bath
rooms, while adding a degree of transparency. In one guest bathroom, th
upper part of a shower is framed by glass, exposing a sliver of its blu
cladding to a hallway. A corner of the soaking tub in the master bathroo
is also enclosed by glass to offer views across the adjoining master bec
room and the windows beyond. (Shades allow privacy.) A vertical ga
between sections of the entry shelving creates a similar juxtapositio
between interior and exterior, framing a glimpse of the living room.

Avid travelers, the clients wanted to showcase their collections o
objects and books, so the longest legs of the central core are reserved fo
display. On the east side of the cube facing the entry, a wall of shelves an
niches houses artifacts collected in countries such as Tibet and Morocc
A carved Moroccan door at the endpoint of the passageway pivots t
reveal a private study, while a nearby illuminated niche frames a fish fo
sil thousands of years old. In the bathrooms, handmade Japanese ceram
bowls the clients acquired on a trip serve as sinks atop custo
mahogany pedestals.

The clients encouraged Burnham to explore unexpected mat

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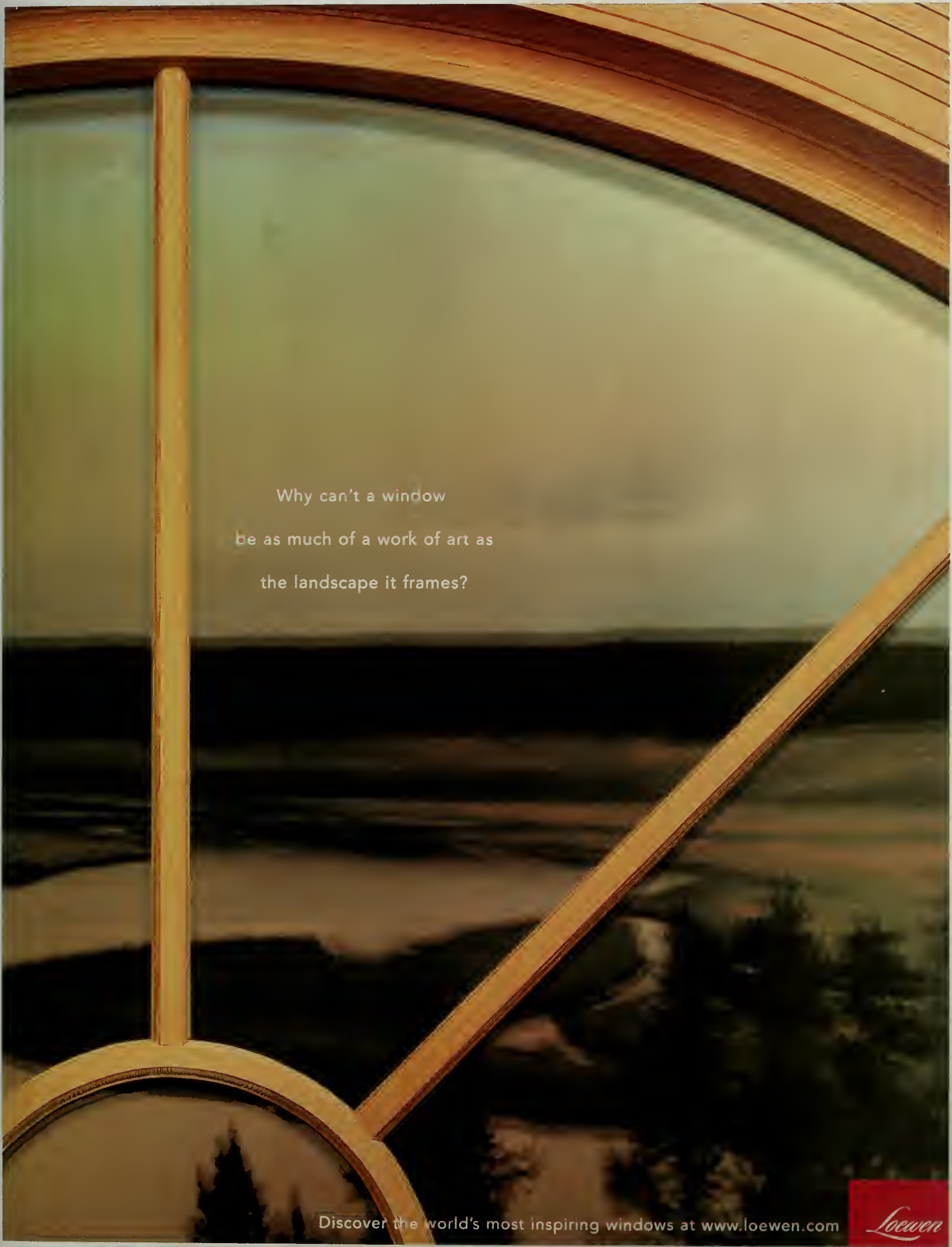
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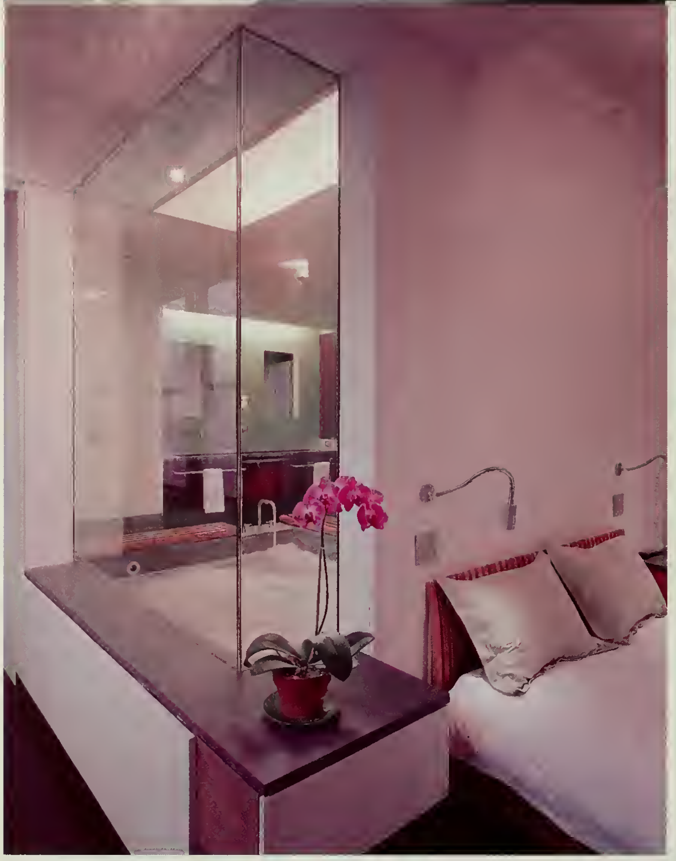

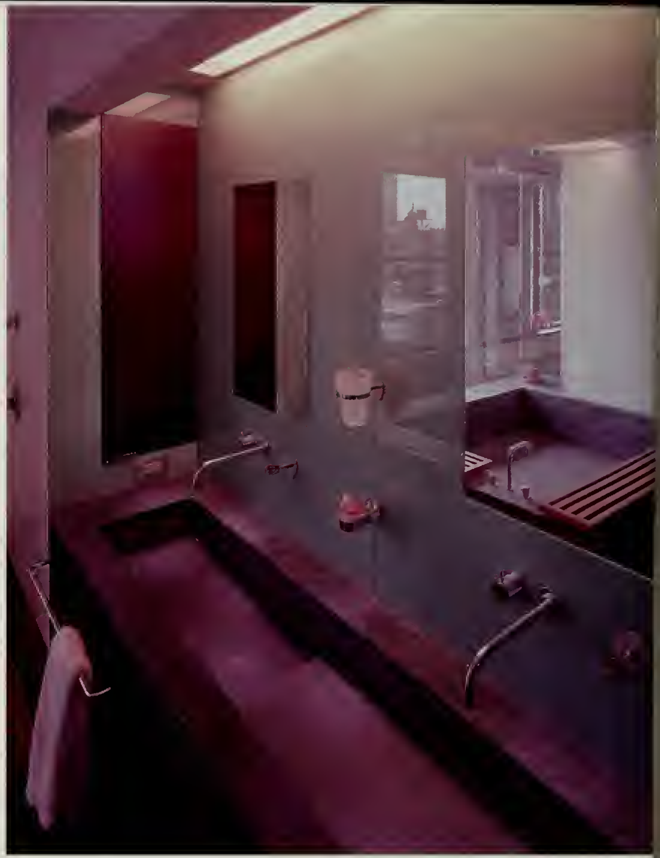

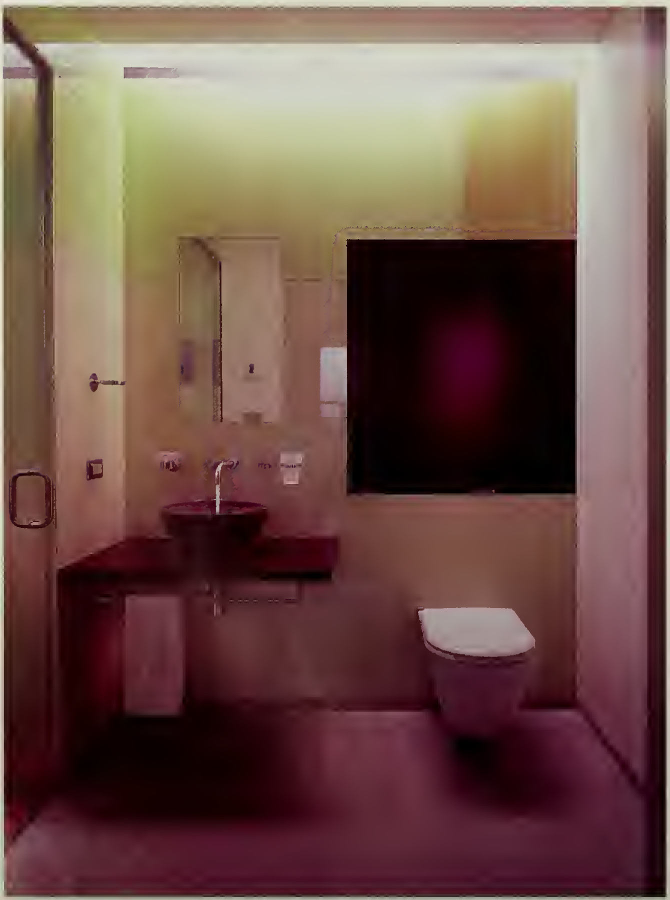

The master bathroom tub is framed by glass to access views from the bedroom windows (above left). The tub and sink (above right) are made of Pietro Cardosa stone. A guest bathroom features back-painted glass panels (below left).

rials "to create a canvas of texture and col
meant to capitalize on the play of shadow a
light," the architect says. In the three bathroom
for example, colorful walls are abstract collag
of back-painted glass panels: blue, green, a
yellow, respectively. The kitchen backsplash
enlivened with a similar treatment in fiery re
The double sink in the master bath is co
structed of slabs of overlapping Pietro Cardo
stone, the same variegated material used for the tub. Bathroom floors a
Sadler tile, a ground masonry material similar to precast stone, whi
kitchen floors and countertops are fabricated of smoky schist.

The floor plane of the outdoor terrace was brought into t
apartment's main volume to blur the edge between interior and exteri
A floating step of wood ascends to a platform of stone along the northe
and eastern edges of the living room that meld into the exterior pavers.
rock garden, narrow reflecting pool, and graduated railing with n
wood supports enhance this front-row perch for peering at landmark sk
scrapers all around town. ■

Sources
Windows: *ABCO; Windovations*
Custom doors: *Chandler Lewis; Windovations*
Custom plasterwork: *Hatton Berry*
Hardware: *FSB; G+V; Soss*
Glass tiles: *Zecca Glass*
Plumbing fixtures: *Duravit; Vola*
Appliances: *Miele; Wolf*
Lighting: *Color Kinetics; Lightolier; LSI*

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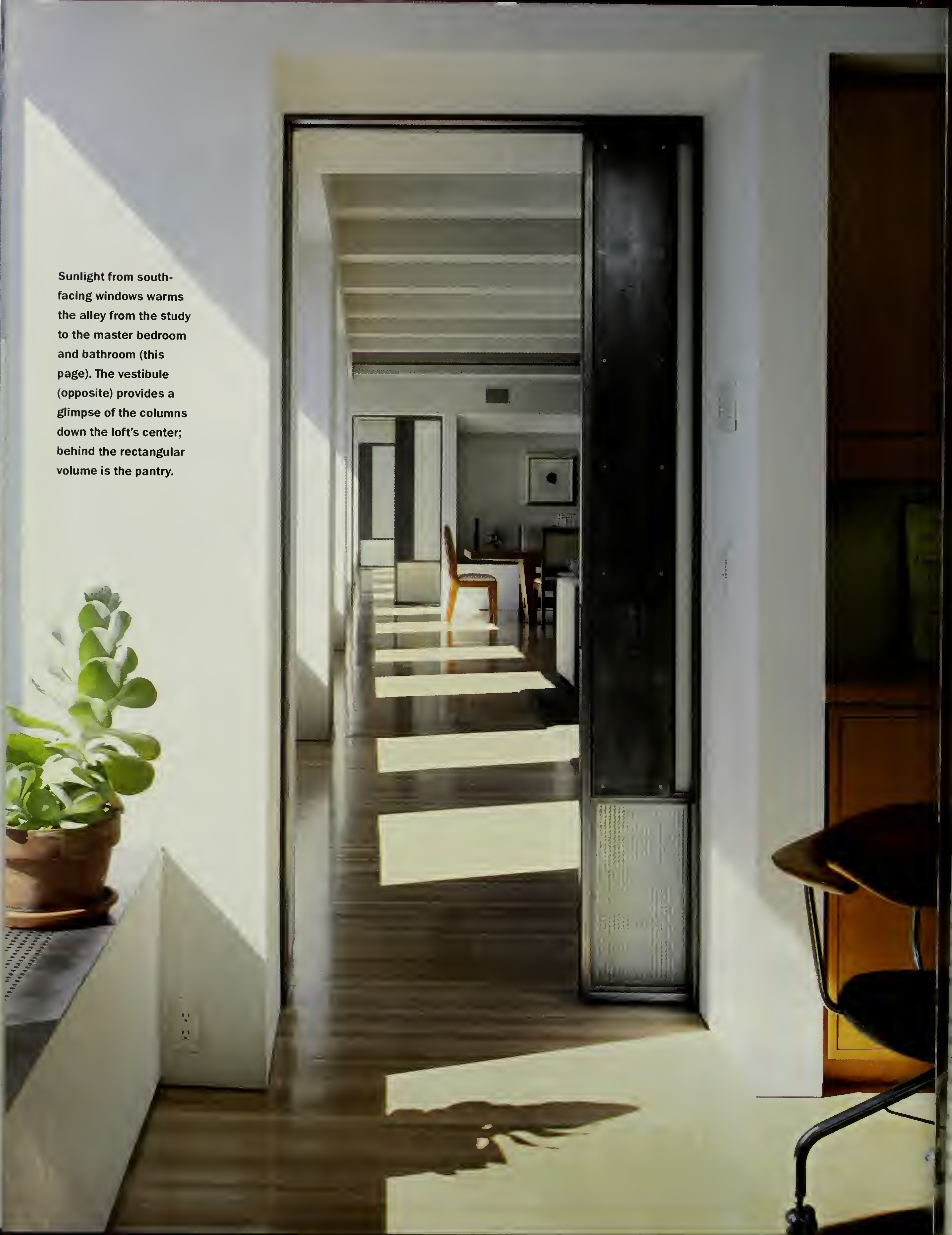
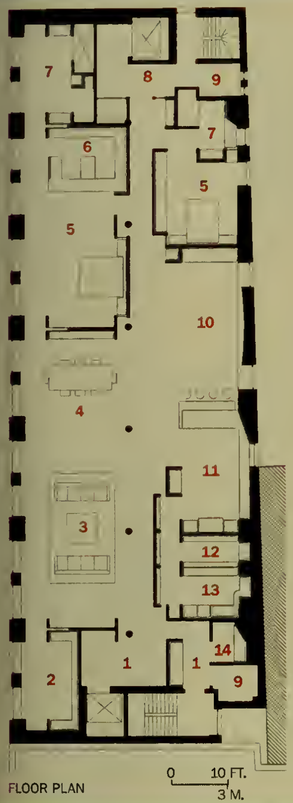


Sunlight from south-facing windows warms the alley from the study to the master bedroom and bathroom (this page). The vestibule (opposite) provides a glimpse of the columns down the loft's center; behind the rectangular volume is the pantry.

For Chelsea's **Steel Loft**, Gwathmey Siegel carves into a generous, daylit volume to craft an urban oasis



1. *Entry*
2. *Study*
3. *Living room*
4. *Dining room*
5. *Bedroom*
6. *Dressing room*
7. *Bathroom*
8. *Service*
9. *Mechanical room*
10. *Sitting room*
11. *Kitchen*
12. *Pantry*
13. *Laundry*
14. *Powder room*

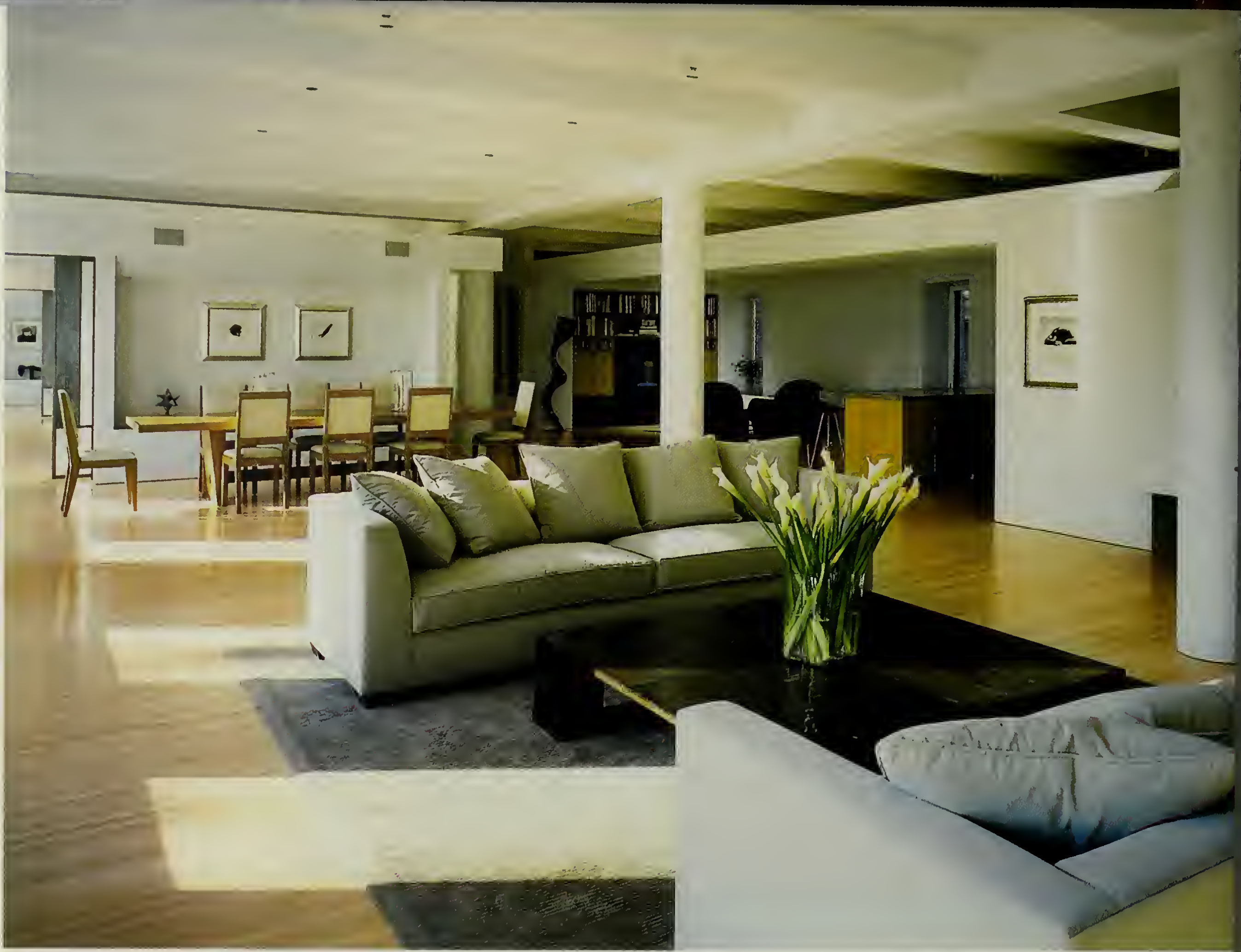
y Deborah Snoonian, P.E.

New Yorkers who reside within sight of Lower Manhattan must contend with both the quotidian challenges of city life and the visual reminders of the tragedy of 9/11. This downtown-facing loft in Chelsea offers just what such denizens need—a sanctu-y from the complexity and velocity of the modern urban condition. Its esigners, Gwathmey Siegel & Associates Architects of New York, avoided e common pitfalls of residential loft makeovers, namely unimagined areness and oversculpted, florid excesses, and instead transformed the ace into an oasis of warmth and elegant proportions.

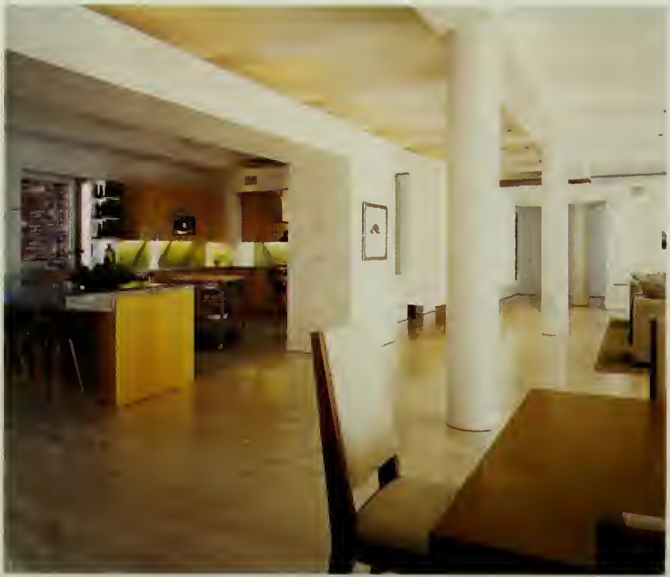
The project can be termed a labor of love. The loft's owner, free-nce writer and producer Eric Steel, is the stepson of its designer, Charles wathmey, FAIA. Gwathmey and his wife found the 7th-floor loft for eel not long after dissuading him from buying a move-in-ready loft in ibeca. The existing buildout was, in Steel's words, "the kind of disaster at only an architect, and maybe his son, could love," featuring ersatz eek and Italianate motifs. Gwathmey saw beneath a skin of trumped- columns and Rococo-style murals to the space's skeleton: a rectangular lume 110 feet long and 40 feet wide, with a ceiling slab just shy of 10 et high and a row of columns parallel to the centerline of the loft's long axis. The south wall has a grand array of fourteen windows (seven groups of two) that admit the sun's rays all day, thanks to low-rise buildings to the south. Transforming this light-filled orthogonal space was a project any architect would be eager to tackle.

Surprisingly, New Yorker Gwathmey had never designed a loft before. He describes the process as "a reductive exercise, like sculpture or an excavation, resulting in a system of solids and voids that has a hierarchy, yet still feels like a single volume." Adhering to a less-is-more rubric, he stripped the space to its essence, using the columns to define the main circulation through the loft's center, and the south-facing wall as a secondary circulation aisle. Instead of creating separate rooms, he sec-

Project: *Steel Loft*
Location: *Chelsea*
Owner: *Eric Steel*
Architect: *Gwathmey Siegel & Associates Architects—Charles Gwathmey, FAIA, partner in charge; Kang H. Chang, project architect; Tim Butler, design team*
Structural engineer: *Severud Associates*
Mechanical engineer: *Thomas Polise*
Lighting: *Hillmann DiBernardo*
General contractor: *B + F Building*



Gwathmey designed the dining room furniture (at back in photo above). An air duct with vents on top is hidden in a beam along the central alley (top left in photo below).



tioned off orthogonal spaces within the larger volume that offer varyi levels of privacy, depending on their function. He's fond of calling t result a three-dimensional Mondrian painting.

The atmosphere is one of enveloping calm. When the elevat door slides open, a visitor walks into the vestibule, a simple table ar piece of artwork announcing the entry without fanfare. Turning right ar then left offers a glimpse down the columned central alley; to its left are large living and dining room, to the right is the kitchen and beyond th a sitting room. Overhead, ceiling beams radiate perpendicularly from primary beam supported by the columns, creating the illusion of abstracted, geometric arboretum, with perfectly rounded tree trunks ai squared-off beams as branches. This was a cunning design maneuv "I wanted to create a canopy effect to make the ceiling seem higher th 10 feet," Gwathmey says.

Gwathmey furthered the illusion of height by conceiving of system of cantilevered walls and partitions of varying thicknesses a heights to define the loft's "rooms." These elements touch neither ceili nor floor, providing several horizontal reference points to give the loft sense of depth and a scale that feels homey rather than industrial. T reveals at the floor set off the partitions as sculptural elements in the own right, but they're far from merely decorative—Gwathmey plac HVAC equipment, vents, storage spaces, and lighting within them.

The window-lined alley provides access to Steel's study ar master bedroom suite, which includes a separate dressing room and ma ter bathroom. All these areas can be closed off by means of sliding doo

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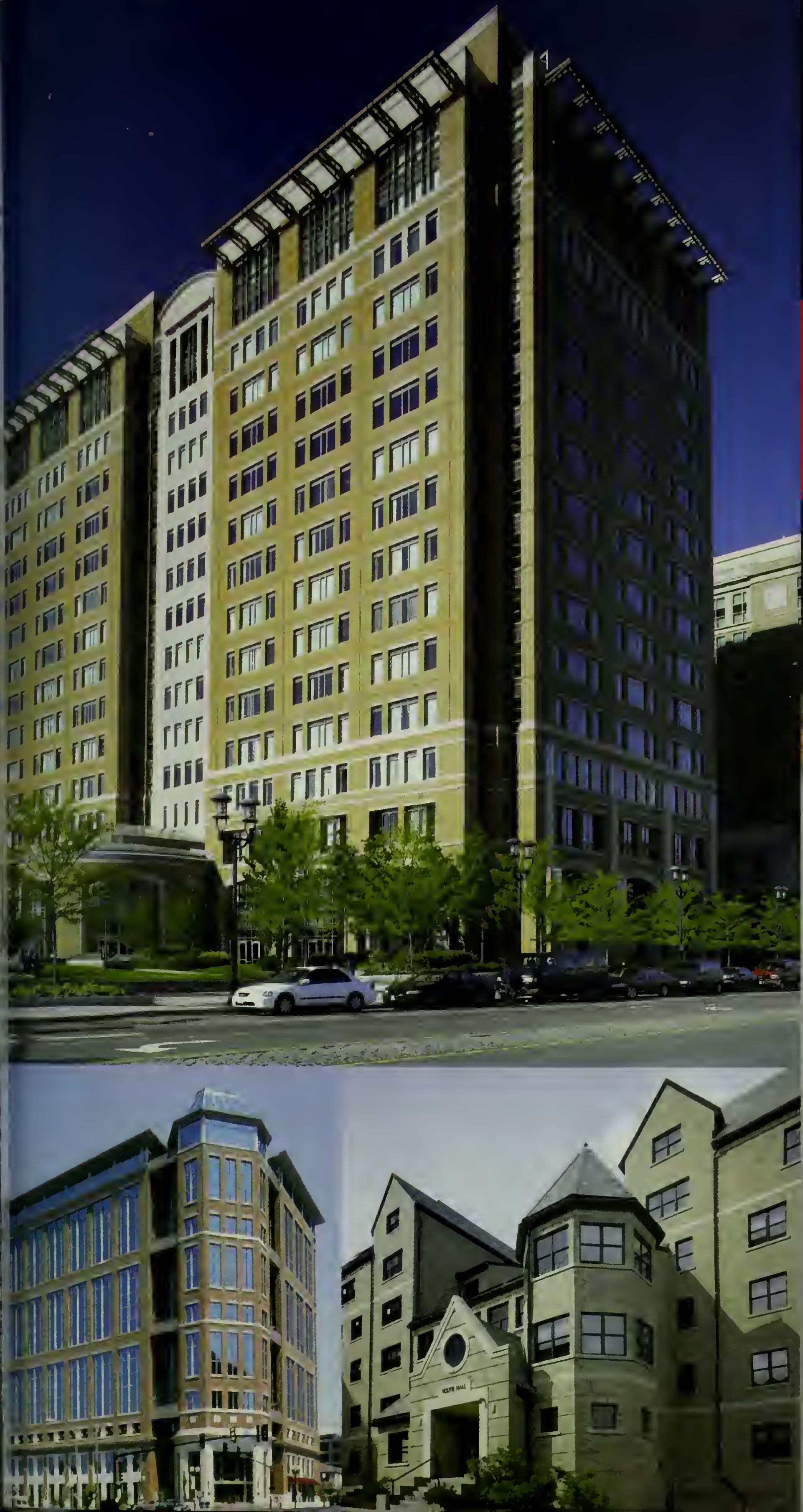

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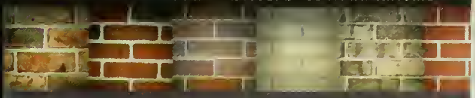

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The master bedroom (above) and study (below) can be closed off with sliding steel-and-glass doors. Warm materials and a neutral palette create tranquillity within.

of steel and patterned glass. Clerestories of highly transparent glass fill the spaces between the cantilevered walls and the ceiling of both the master and guest bedrooms for acoustic privacy. The guest bedroom and bath are tucked away in the loft's northwest corner.

A color scheme of all-white walls and neutral-toned furnishings, combined with a palette of only five materials—maple flooring, anigre wood cabinetry, Spanish limestone, powder-coated steel, and stainless steel—lends his home a serenity that Steel is loath to clutter, even though he's a self-admitted pack rat. His favorite view of the apartment is from

the entrance to guest bedroom, looking down the central alley toward t
front entry. "The apartment is completely white from that vantage, a
there's a strange layering of shades of white, especially at certain times
the day and year. It's incredibly graphic and peaceful."

Gwathmey saw the loft as a singular opportunity for a fathe
son collaboration. "He was willing to take risks with me," he says of Ste
Was this difficult for Steel? "The relationship between architect and clie
is much more intimate than anyone ever imagines," he allows. "And wh
it's your own father—well, now there are things he knows about m
things I might not normally tell my parents. But working on the proje
really cemented our relationship. It's like a culmination, a sign that we
gone the distance in building a sort of intimacy. And there isn't one lig
switch or wall socket I'd change." ■

Sources

Aluminum, glass: *Skyline Windows*

Steel and patterned-glass doors: *Kern Rockenfield (custom)*

Hardware, hinges: *E.R. Butler*

Pulls: *FSB (Bauhaus handles)*

Cabinetwork, custom woodwork: *Rimi Woodcraft*

Ambient lighting: *Edison Price*

Task lighting: *Alco; Louis Poulsen*

Dining table, chairs: *Pollaro Custo Furniture (Charles Gwathmey)*

Plumbing fixtures: *Concinnity*

Paints and stains: *Benjamin Moo*

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Residential Products CEDIA Review

Each September, the custom electronics industry convenes at the Custom Electronic Design & Installation Association show (CEDIA) to get a peek at the high-end tech products that will hit the luxury market the following year. This year, CEDIA was decidedly flat—with flat TVs, flat speakers, and other thin solutions intended to ride the coattails of the surging plasma and LCD TV market. Other products in the spotlight illustrate the importance of controlled lighting and the Internet's growing role in home control products and appliances. Below are some of the most intriguing items on display this year. *Rebecca Day*

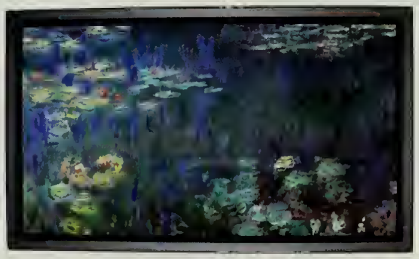
An artistic canvas for blank screens

plasma TV is a home owner's dream, but it can be a design nightmare when the
/ is off. Solar Shading Systems solves the blank canvas problem with VisionArt, a
ıotorized shade printed with fine-art images. VisionArt offers 100 limited-edition
ıe-art prints in eight frame styles and 32 original works of art and photography. The
ımpany uses the high-resolution giclee ink-jet process to reproduce images, which
ıe company claims are indistinguishable from the original. The motorized shade can
operated by a home-theater remote control. VisionArt, A Division of Solar Shading
/stems, Newport Beach, Calif. www.solarshadingsystems.com **CIRCLE 201**

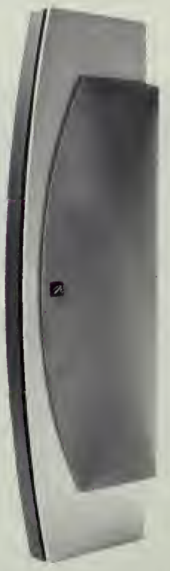
Home-theater lighting

ıown for its lighting and grip
oducts for the movie industry,
atthews Studio Equipment has
panded to the residential home-
eater market with a new line of
hting fixtures. Models include the
ımeo spotlight, Eclipse wall
once, Cape wraparound light
ıown), and Torchière floor lamp.
ıtional finishes include bronze,
wter, antique brass, matte black
ckel, brushed nickel, and chrome.
ıstom finishes are also available.
atthews Studio Equipment,
ssion Viejo, Calif.
w.artcoustic.com **CIRCLE 202**

► Digital artwork



Consumers who spend a lot for a high-definition TV expect it to be more than just a boob tube, and the digital media experts at Roku agree. When the company's HD1000 Digital Media Player connects to an HDTV, it can play music, display art from the masters, or feature a slide show of family photos. Roku sells digital art packs, including collections of digitized masterpieces by Van Gogh, Monet, and Ingres, and nature works comprising landscape photography and motion video. Roku, Palo Alto, Calif. www.rokulabs.com **CIRCLE 200**



▲ Plasma monitor speaker

MartinLogan's Fresco speaker makes a gracefully bold design statement next to a plasma monitor. Measuring 6" from the wall, the curved enclosure features an interchangeable faceplate and a palette of optional grille colors. Vertical or horizontal positioning enables Fresco to serve as a front, center, or surround-sound speaker. MartinLogan, Lawrence, Kansas. www.martinlogan.com **CIRCLE 204**

▼ Artistic speakers

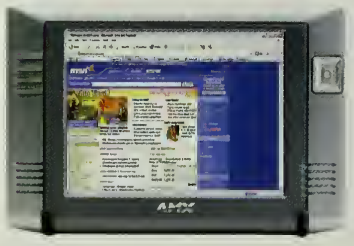
A loudspeaker doesn't have to look bad to sound good. Artcoustic, founded by former Bang & Olufsen designers, uses acoustically transparent speaker grilles as a canvas for artwork or patterned fabrics that blend with the decor. Artcoustic speakers vary in size but are all less than 6" deep. Screen fabrics are available in designer styles or custom artwork. Artcoustic USA, Mission Viejo, Calif. www.artcoustic.com **CIRCLE 203**

► A fitting subwoofer

Every home theater lover wants room-shaking bass, but finding space for a bulky subwoofer can be a vexing exercise for architects and designers. NHT's clever solution is the iW1 in-wall 14" x 36" sub that measures less than 3.5" deep—a neat fit in a standard residential wall. The outboard electronics and amplifier stack with the A/V gear. NHT, Benicia, Calif. www.nhthifi.com **CIRCLE 206**

▲ As big as it gets, for now

Samsung's 63" plasma TV is the industry's largest—for the moment. The built-in analog tuner enables users to view standard TV, while the set also includes the connectors required for a digital cable or satellite box. The 3" deep display features Samsung's fanless design for quiet operation. The Dolby Virtual Surround System delivers a surround-sound effect from two speakers. Samsung Electronics, Ridgefield Park, N.J. www.samsungusa.com **CIRCLE 205**



▲ Home control panel by day, internet portal by night

No longer tied to their touch screens, home owners can now pick up an AMX Modero home control panel to co trol lighting, climate, security, and A/V functions from anywhere in th house. Even better, Modero panel are Internet appliances, too, allow ing homeowners to access MP3 music libraries, surf the Web, and check e-mail. The connectivity works both ways—home owners can also control home functions over the Internet from anywhere in the world. AMX Corporation, Richardson, Tex. www.amx.com **CIRCLE 208**

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▼ Wireless LCD TV

Sharp Electronics offers the first battery-powered LCD TV for the U.S. market. The 15" television is an integrated unit, complete with speakers, stand, and a handle. The rechargeable battery operates for three hours off a single charge. When networked with a home PC, the LC-15L1U can show a DVD movie without a wired connection. Sharp Electronics, Mahwah, N.J. www.sharpelectronics.com **CIRCLE 207**

▲ Scan your dinner

Beyond's Westinghouse microwave oven comes with a database of 4,000 products tested in cooking labs precisely for the appliance. The oven's bar-code scanner is able to scan UPCs to see if they are available in the database, which is continually updated and available over the Internet via the Beyond network. The oven links to a Beyond hub over a power-line carrier network. Beyond/Salton, Seattle. www.beyondconnectedhome.com **CIRCLE 209**

► Quieter shading control

Lighting control isn't just about bulbs and switches. Lutron Electronics believes room shading is as important to a sophisticated lighting system as programmed dimming scenes. A noisy motor ruins the subtle effect of motorized shades, but Lutron's new Sivoia QED intelligent drive system for roller shades, Roman shades, and draperies boasts virtually silent operation. The system integrates with Lutron lighting-control keypads. Lutron Electronics, Coopersburg, Pa. www.lutron.com **CIRCLE 210**

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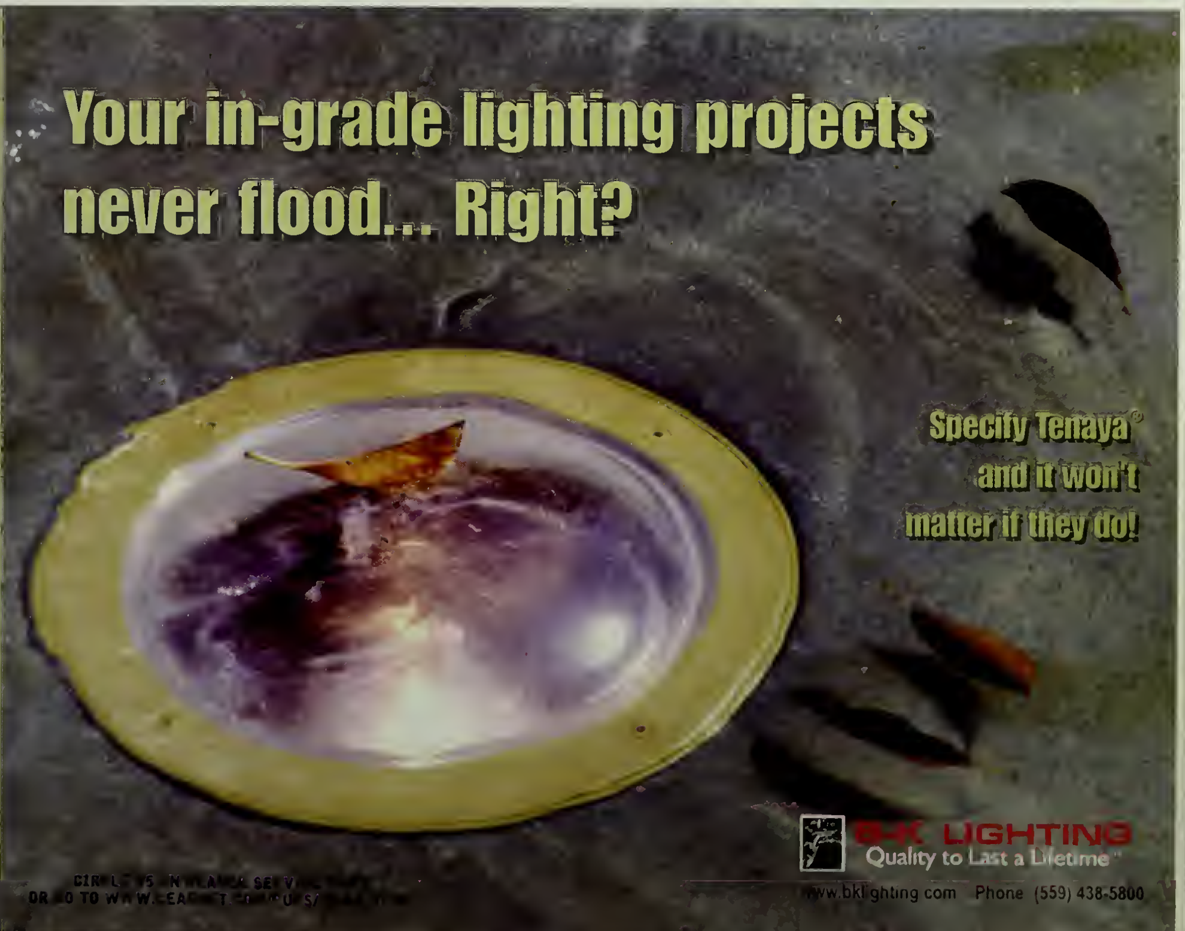

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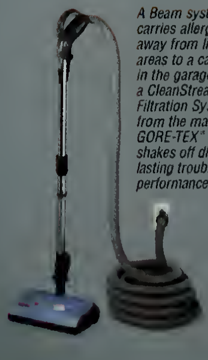


A Beam system carries allergens away from living areas to a canister in the garage where a CleanStream™ Filtration System from the makers of GORE-TEX® fabric shakes off dirt for lasting trouble-free performance.

Products

Heating & Heat Control

This month's focus is on products that either **provide a source of heat or control excess heat**. Heat sources as varied as fireplaces and radiant-heated glass can work in harmony with the latest **sunshades or reflective coatings** to create energy-efficient, well-designed, and comfortable interior environments. *Rita F. Catinella*

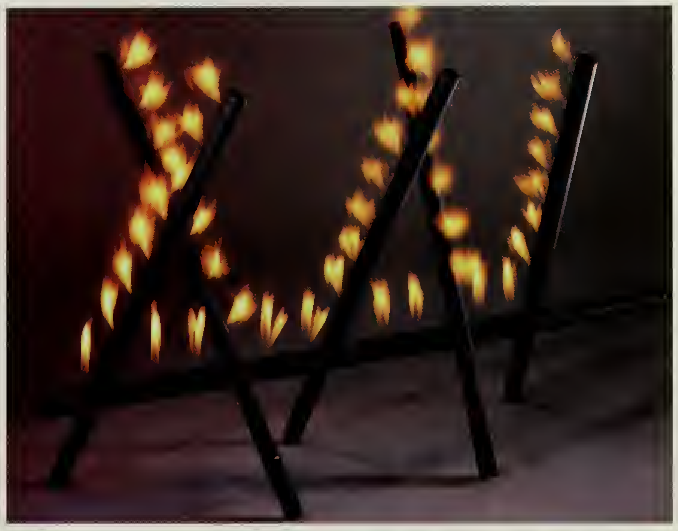
Flaming steel sculpture heats up the lobby of a hotel in the wine country

The San Francisco design firm Sand Studios was commissioned by David Baker and Partners Architects to design and fabricate a ireplace that would complement he contemporary, yet organic feel of the Hotel Healdsburg, located in he wine country of Northern California. Inspired by the flaming wigs of campfires, the hotel lobby's replace sculpture is precisely nachined and fabricated from teel tubing and finished in heat-esistant paint. Similar pieces are ow custom fabricated by Sand Studios to fit unique site conditions nd work with both natural gas nd propane.

The Sand Studios staff, including Larissa Sand and Oblio Jenkins, have designed and fabricated several different gas fireplace inserts, whole fireplaces, and fireplace surrounds in the past, and currently have plans for different versions of the sculpture based on the same construction. Although the piece is not UL-listed, the firm would consider such a process if a large enough order was needed.

The fire sculpture is just one of a growing list of products the firm has designed and fabricated, including lighting, furnishings, and custom pieces, such as a reception desk and chandelier. Sand Studios, San Francisco. www.sandstudios.com

CIRCLE 211



The sculpture serves as a conversation piece and a source of light and heat.

University facade Keeps school cool

rand Valley State University's new ook-DeVos Center for Health ciences, located in Grand Rapids, ichigan, features a 90' tall, nergy-efficient unitized curtain all and interlocking sunshade stem from Wausau. The high-per-rmance glass and airfoil-shaped nshades serve to significantly duce heat gain in the building hile allowing students and staff to el connected to the downtown mmunity. Wausau Window and all Systems, Wausau, Wis. ww.wausauwindows.com CIRCLE 212

Radiant heat window system now available in the U.S.

Now available in North America for both residential and commercial projects, IQ Glas is a heated-glass window system that has been available in Europe for more than 17 years. IQ Glas features a double-pane structure that allows radiant heat to warm sunrooms, conservatories, indoor swimming pools, and other rooms that are difficult to heat efficiently with traditional convection heating. The inner pane has a thin metal-oxide coating that helps disperse heat equally, while the outer pane has a special coating that keeps heat inside while repelling cold air. Between the two panes, an inert gas enables the system to achieve high levels of thermal insulation (.14 U-Value), even though the temperature of the windowpane never exceeds body temperature. IQ Glas manufacturer Glass Consult claims the main advantage of the product over traditional heating methods is the ability to keep dust circulation to a minimum, ideal for anyone suffering from asthma or allergies. In addition, IQ Glas can be combined with any type of antitheft device or alarm, can be applied with built-in blinds between the panes, and conceals all cables and wires in the window frames. For indoor swimming pool applications, IQ Glas stays condensation-free even with a relative humidity of 70 percent and extremely low temperatures outside. Glass Consult, Raleigh, N.C. www.iqglas.com

CIRCLE 213

IQ Glas helps keep indoor pools, sunrooms, and other challenging spaces warm year-round.

Products Heating & Heat Control

◄ Sun and moisture protection

Constructed of premium-grade teak, eastern hard rock maple, or vertical grain fir, all Giati market umbrellas are custom handcrafted. The wooden, non-teak components receive six coats of hand-applied, marine-grade varnish that protects against moisture and the drying effects of ultraviolet rays. The Next Century Market umbrella (shown) is one of two new designs from Giati constructed to withstand damage from wind, water, and sun. Giati Designs, Santa Barbara, Calif. www. giati.com **CIRCLE 214**

► Reflective roof coating

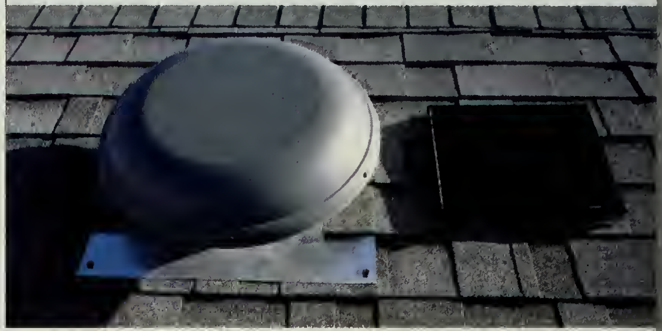
Excessive heat absorption by roofing materials requires more energy to keep interior spaces cool and comfortable. Custom-Bilt Metals' Ultra-Cool coatings increase the reflectivity of a standing-seam roof to 38.3 percent, compared to identical colors with conventional coatings that achieve only a 25.2 percent level. Each additional percentage point of reflectivity reduces metal temperature by 1 degree, allowing for a significant difference, especially in medium to darker colors. Custom-Bilt Metals, El Monte, Calif. www.custombiltmetals.com **CIRCLE 216**

▲ A cleaner gas fireplace design

The Infinity fireplace's clean face design allows finishing materials to be brought right up to the fireplace opening, eliminating louvers and grilles traditionally found on gas fireplaces, and emulating the look of a wood-burning unit. The Infinity utilizes a Draft Assist program that allows venting up to 90'—five times longer than most gas fireplaces—and enables installation in difficult settings. Heat-N-Glo, Lakeville, Minn. www.heatnglo.com **CIRCLE 218**

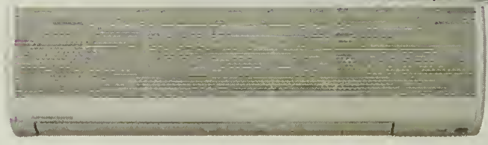
▼ Solar-powered attic ventilator

CertainTeed's Solar Powered Roof Vent is an energy-efficient alternative to traditiona residential power attic ventilators. The vent utilizes a Siemens solar panel to collect and deliver power directly from the sun to a 24-volt DC motor inside the power vent. Because the tempered solar-glass panel is separate from the low-profile, galvanized-steel dome, it can be positioned anywhere on the roof for optimal energy collection. CertainTeed, Valley Forge, Pa. www.certainteed.com **CIRCLE 215**



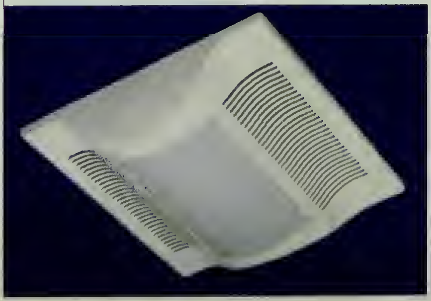
► Smarter and slimmer heating

Mitsubishi Electric has added three residential heat-pump models to its Mr. Slim split ductless air-conditioning and heating systems product line. The discreet indoor unit (below) is mounted high on the wall, freeing up window space and blending into the interior. In response to indoor and outdoor temperature changes, the unit's inverter-compressor technology modulates to deliver the exact amount of cooling or heating required by each zone. Mitsubishi Electric & Electronics USA, Lawrenceville, Ga. www.mitsubishielectric.com/HVAC **CIRCLE 217**



▼ Advanced ventilation

Panasonic's WhisperLite Advanced Ventilation Fans are super quiet, energy efficient, fan/light combinations designed for longer run times or continuous operation for bette indoor air quality. WhisperLite Ventilation Fans utilize two Panasonic Quick Start (flicke free) 13-watt compact fluorescent lamps for warr color-corrected lighting. The fan is easy to install, Energy Star–approved, and HVI (Home Ventilating Institute) certified. Panasonic/Enterprise Sale Group, Secaucus, N.J. www.panasonic.com/ building **CIRCLE 219**



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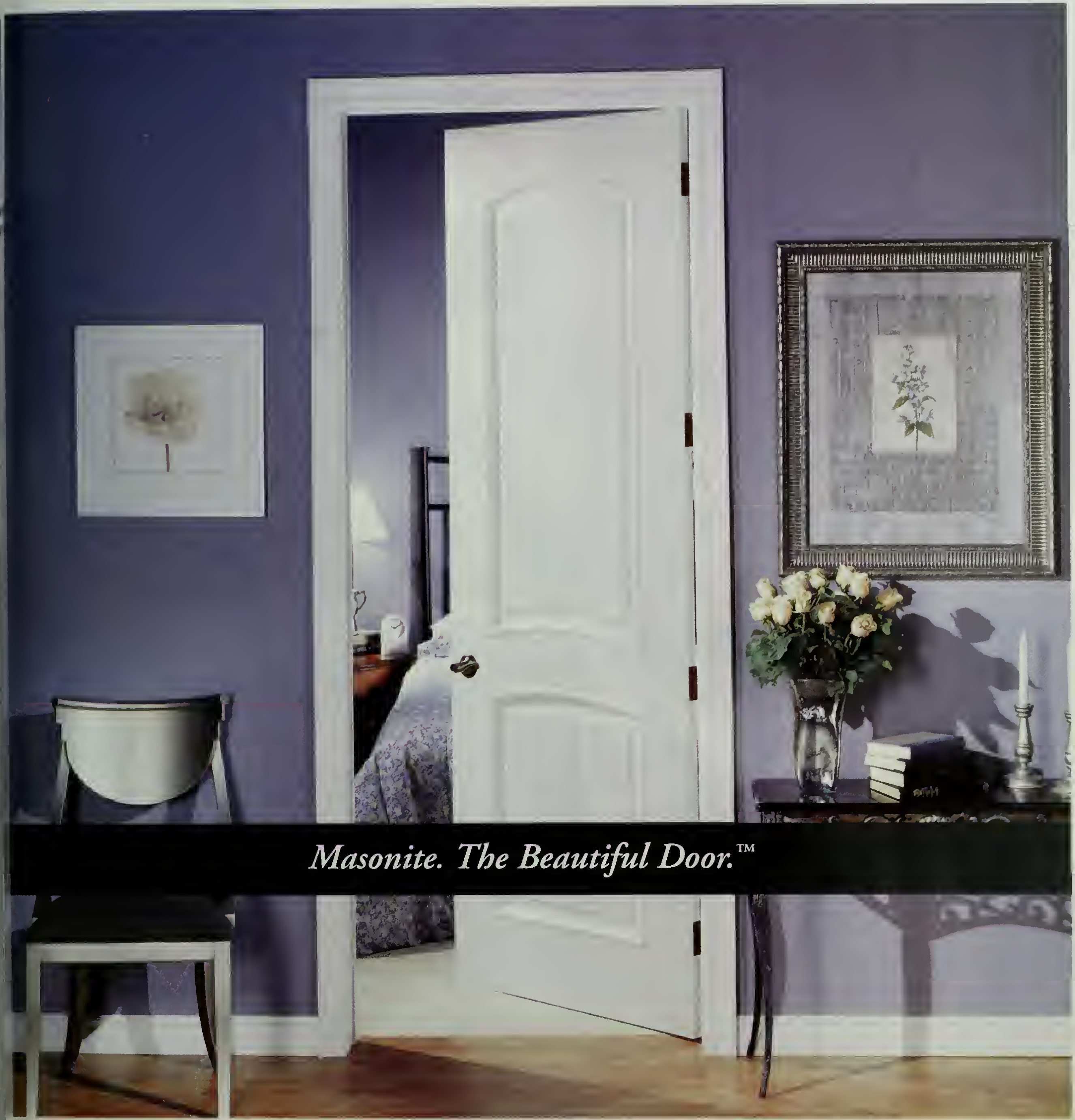

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▲ Blades of water
Waterblade is a new line of bath fittings ntroduced by Rubinetterie Ritmonio at the most recent Cersaie, the annual tile and bath-fittings trade show held in Bologna, Italy. Waterblade features a basic rectangular shape that works as part of a modular system of built-in shelving in three lengths and a showerhead and taps for the basin and bidet that release water in a waterfall effect. All of the elements are manufactured in stainless steel with a polished chrome finish. Rubinetterie Ritmonio, Varallo, Italy. www.ritmonio.it **CIRCLE 220**

▸ Tempered channel glass
Westcrowns introduced Pilkington's Profilit Lineal glazing in its annealed glass form to the U.S. market in 1999. Pilkington now offers Profilit T, a tempered channel glass made in the U.S., hown here in a community-center application. The standard glass hannel is formed with a cast outer urface, which diffuses incoming light, reating a sharp green tint to the lass. Westcrowns, Shallotte, N.C. www.westcrowns.com **CIRCLE 222**

Interactive conference table
ano is an interactive conference table from martdesks that integrates the company's patent-ending flipIT mechanism, enabling users to rotate an CD flat-panel monitor from under the tabletop into an ergonomic, semirecessed osition while providing a clear top surface when not in use. Smartdesks, itherville, Md. www.smartdesks.com **CIRCLE 223**

Product of the Month MEDS Flooring Program

MEDS is a new program created by Armstrong to meet the current and future design needs of the health-care market. MEDS, which stands for Medical Environment Design Solutions, combines an extensive product portfolio with a team of health-care specialists, flooring stylists, customer-service representatives, and technical experts to deliver flooring solutions based on the unique space requirements of hospitals and hospital systems, clinics, medical office buildings, and long-term-care communities. As part of the MEDS program, Armstrong will continue to produce health-care-focused flooring products, which feature targeted colors and patterns that connect within the product line, integrate with other Armstrong flooring products, and coordinate with other commercial interior finishes to help facilitate the design process. Among the new MEDS featured flooring products are Arteffects commercial tile, Medinpoint homogeneous vinyl sheet (shown), and Timberline heterogeneous vinyl sheet, now with a protective urethane finish. Armstrong World Industries, Lancaster, Pa. www.armstrong.com **CIRCLE 221**

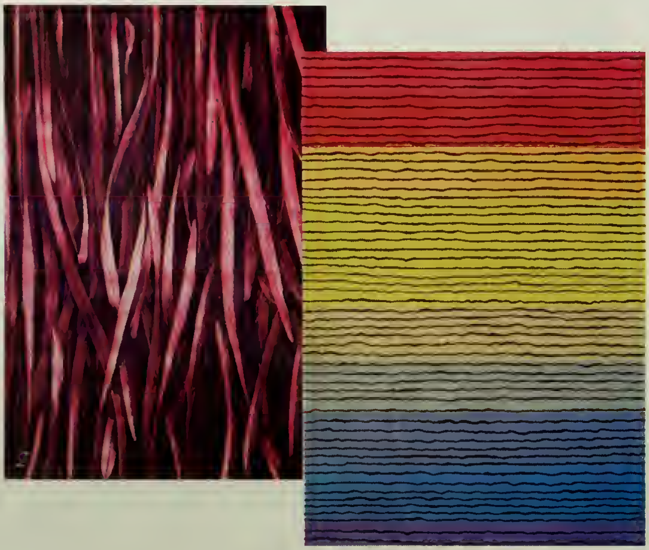
◂ Going back in time
Due to a great demand for the wall clock designs of George Nelson, the Vitra Design Museum has introduced another series based on original models and technical drawings from the George Nelson Archive that is part of the museum's collection. Vitra has added four designs from the oversize clock collection and is expanding color options of the existing models. The Turbine Clock, Sunflower Clock (top), Eye Clock, and Star Clock (bottom) from 1955 and 1958 are larger and more extravagant than Nelson's earlier designs from 1948–52, which include the Ball, Block, Sunburst, and Asterisk, which were reintroduced in 1999. These later designs also employ different materials, such as walnut, brass, and chrome. Vitra, New York City. www.vitra.com **CIRCLE 224**

◂ The top chairs at Promosedia

Gaia, Baba, and Twist are three of the Top Ten chairs that were exhibited last September at Promosedia, the annual international seating exhibition in Udine, Italy. Gaia (far lef made of two tapered pieces of chrome metal with a seat synthetic leather, was designed by Robby Cantarutti for Airnova. Designer Adriano Tolomei's Baba (left), for Sintes 2, is of polypropylene resin on a steel or aluminum base. Its height can be altered using the built-in gas pump. La Sedia's Twist chair (above) is an ultra-compact folding cha designed by Enrico Picciani. Its four-fulcrum frame is mad of steel and aluminum alloy, with a back and seat of oak plywood and thermoformed plastic. Promosedia, Udine, Italy. www.promosedia.it **CIRCLE 225**

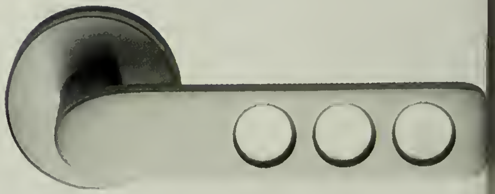
▾ Miles away from beige, boring floors

Designer Jamie Drake, whose recent project work includes the renovation and restoration of Gracie Mansion, New York City's official mayoral residence, has introduced his first collection of rugs at the L'Art du Temps showroom in the New York Design Center. Hand-knotted in China of wool and silk, the floor coverings capture Drake's colorful, yet refined design sensibility. The collection includes Summer (left), an evocation of lush growing grass, and Pulsating Pinstripes (right), a pattern of black dashes pulsing through a sea of color. L'Art du Temps, New York City. www.newyorkdesigncenter.com **CIRCLE 226**



◂ One tough wall panel

Approved for use in wet areas, including tub surrounds, USG's Fiberock Brand Aqua-Tough Interior Panels are engineered to provide increased resistance abuse while outperforming paper-faced glass-mat-faced panels. Designed to be installed and finished like traditional wal board, the new panels feature a smooth surface that can either be painted or fin ished with ceramic tile. USG, Chicago. www.usg.com **CIRCLE 228**



▴ Plan a well-designed entrance

Valli & Valli has introduced a new door lever and complementary hardware design by architects and partners Massimiliano and Doriana Fuksas. The door lever is crafted of solid brass and is available in chrome and satin-chrome finishes. The lever's clean design rises from a circular rosette into a straight handle with curve edges that is distinguished by three cutout holes. Valli & Valli, New York City. www.vallievalli.com **CIRCLE 227**

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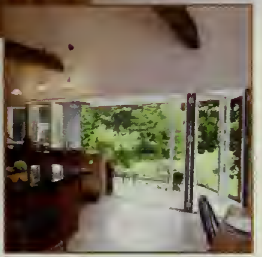
When is a wall not a wall?



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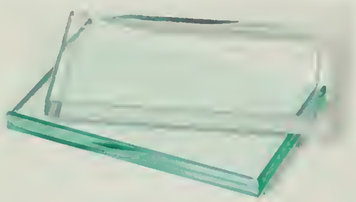
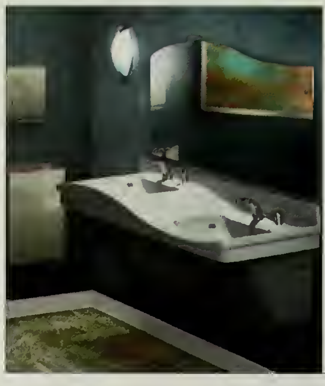
Product Briefs

▼ Low-iron float glass



Responding to market demand for increased clarity and color neutrality in glass, Guardian scientists reduced the iron content and added key ingredients to its clear float glass to create the company's newest product offering. Ultrawhite is a clear, low-iron, high-transmission glass product that can be used virtually anywhere regular float glass is used. Guardian Industries, Auburn Hills, Mich. www.guardian.com **CIRCLE 229**



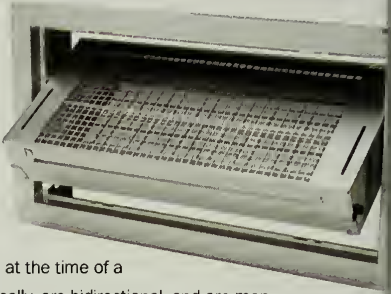
◄ One system, two heights

The Frequency lavatory system featur an unconventional wave design that combines a lower ADA-compliant sink with a higher sink, making it ideal for washrooms in upscale retail centers, restaurants, offices, hotel lobbies, and fitness centers. The system is made o Terreon solid-surface material and is available in one-, two-, and three-stati options. Bradley, Menomonee Falls, W www.bradleycorp.com **CIRCLE 232**

► Translucent protection

Cordek, a cost-effective surface protection product that has been the industry standard for protecting interior and exterior surfaces during construction projects in Europe and Asia, is now available in the U.S. The translucent, fluted polypropylene sheet is available in thicknesses ranging from 3 mm to 10 mm and in a variety of colors. The standard sheet size is 8' x 4'. Cordek, Houston. www.cordekusa.com **CIRCLE 230**

► Certified flood vents



Smart Vent and Flood Vent automatic foundation flood vents are certified by the ICC Evaluation Service as an approved method of releasing the hydrostatic pressure exerted on foundations by water at the time of a flood event. They open automatically, are bidirectional, and are manufactured of stainless steel to meet IRC and IBC building code requirements. One 8" x 16" vent protects 200 square feet of enclosed area below the base flood elevation. Smart Vent, Glassboro, N.J. www.smartvent.com **CIRCLE 231**

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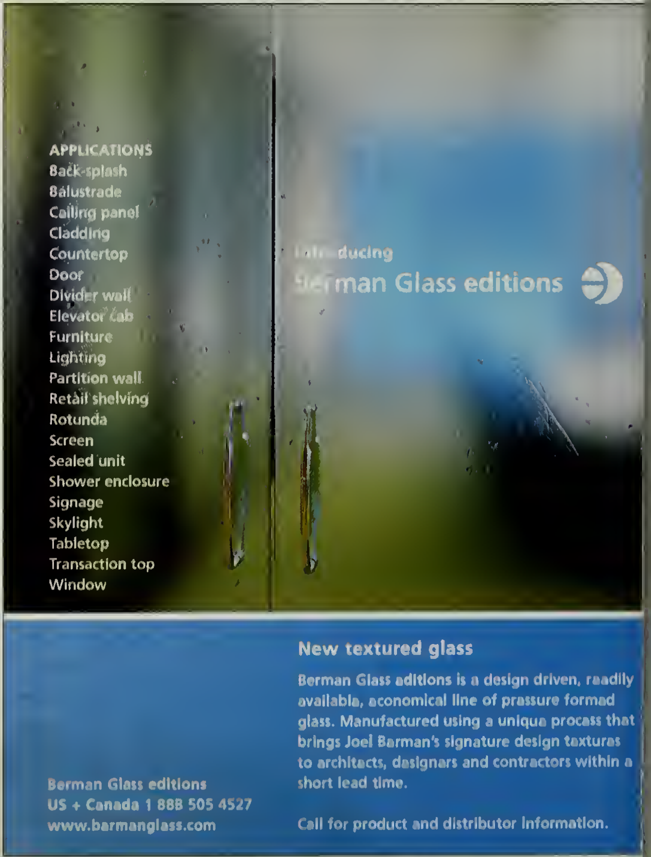

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▲► Rock star fashions for classic furnishings

The graffiti stylings of Stephen Sprouse, a member New York's fashion, art, and music worlds since the 1980s, helped make Louis Vuitton's Fall 2001/2002 handbag and luggage collection a huge success. Sprouse has recently put his tag on a collection of textiles and upholstery from KnollTextiles, where he pays homage to Knoll's Modernist roots, with a twist. At last year's Neocon, Knoll showcased the company's classic furnishings upholstered in radical textiles, including Graffiti Camo (top), a durable upholstery/drapery featuring words of the Declaration of Independence drawn across a camouflage background, and Techno Tweed (bottom), a flourescent neon, tone-on-tone plastic tape and polyester mixture. KnollTextiles, Greenville, Pa. www.knoll.com **CIRCLE 233**

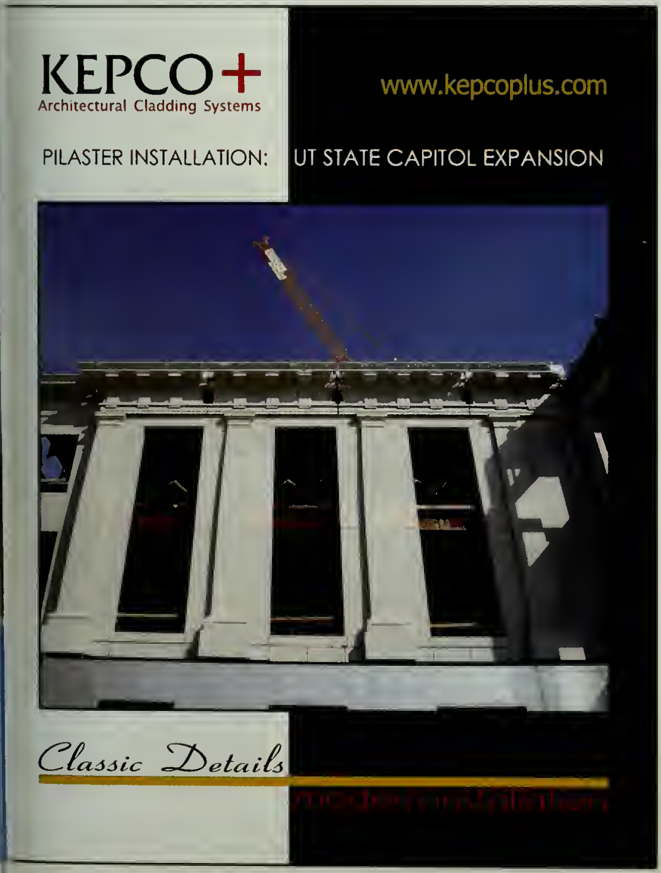
▼ Acoustics + accessibility

The Respond Access Ceiling is a custom downward-accessible, torsion-spring ceiling system ideal for schools, hospitals, office buildings, or retail spaces. The aluminum-framed panels feature a premium 1" glass fiber core to minimize ambient sound and are available with either a textured paint or fabric-wrapped finish. Panel edges are fully finished and slightly beveled to create a monolithic look. Owens Corning, Toledo. www.owenscorning.com **CIRCLE 234**

▲ Fire- and mildew-resistant

National Gypsum Company has developed Gold Bond Brand XP wallboard to meet the increasing demand for mold- and mildew-resistant wallboard products. The panels consist of a fire-resistant, moisture-resistant gypsum core encased in heavy moisture-, mold-, and mildew-resistant 100 percent recycled purple paper on the face and back sides. National Gypsum, Charlotte, N.C. www.nationalgypsum.com **CIRCLE 235**

For more information, circle item numbers on Reader Service Card or go to www.archrecord.com, under Resources, then Reader Service.



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Architect: Steven Ehrlich, Colver City, USA.

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Product Literature

Industrial coating color guide

The Coil and Extrusion Coatings Group of PPG Industries now offers three new color selection guides for Megaflon Coatings, Duraflon Coil Coatings, and Duranar Extrusion Coatings. The guides were redesigned to give the family of products a look that displays their affiliation and the variance of color choices for each coating. PPG Industries, Springdale, Pa. www.industrial-coatings.com **CIRCLE 236**

Concrete CD resource

Exploring the Art of Concrete, available on CD from the Portland Cement Association, provides a compilation of resources on the production, application, and advantages of architectural and decorative concrete. The CD includes a technical manual in English, Spanish, and French on white cement and an image library highlighting imaginative applications. Portland Cement Association, Skokie, Ill. www.cement.org/cd028 **CIRCLE 237**

MRI planning guide

ETS-Lindgren has introduced a new MRI site-planning CD-ROM for those involved in designing, renovating, or building a new MRI site. The CD-ROM offers complete product information on individual shielded room components, as well as details on accessories, testing, and services. ETS-Lindgren, St. Louis. www.ets-lindgren.com **CIRCLE 238**

NEW SITES FOR CYBERSURFING

Online specs for stainless-steel and rod-tensioning systems **www.rontan.com**

Tools to assist in the selection of door closures **www.rixson.com**

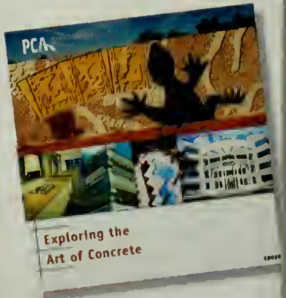
Lighting designed in the Murano glass tradition **www.foscarini.com**

Playful virtual furniture showroom **www.key-london.com**

Online tile options **www.vitrakaro.com**

Screen design software

Da-Lite Screen Company has released the second version of its Screen Design Software. New enhancements include an aspect ratio calculator and complete measurement information for each screen case or frame. Da-Lite Screen, Warsaw, Ind. www.da-lite.com **CIRCLE 23**



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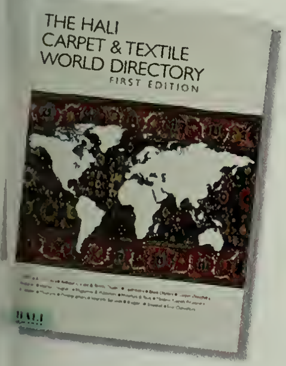
Product Literature

Carpet/textile directory
The HALI Carpet & Textile Directory is a comprehensive listing of contacts and information for the international carpet and textile market. The directory presents more than 600 antique carpet and textile dealers from around the world, including decorative carpet showrooms, antique oriental carpet retailers, and high-end textile art galleries. It also lists more than 400 museums with carpet, textile, and related art collections, and a calendar of regular worldwide events in the field. The directory will be updated and published every two years. Hali Publications, London. www.hali.com **CIRCLE 240**

Updated stone-design manual
The Marble Institute of America offers the revised and expanded *Dimension Stone Design Manual, Version VI.* In addition to technical data, installation guidelines, and maintenance recommendations for all types of stone, the 350-page manual features new chapters on serpentine, travertine, restoration and efinishing, and standards and specifica-ions for stone products. An appendix with reference charts, suggested war-anty contracts, an expanded glossary of ndustry terms, and a comprehensive index for quick reference have also been added. The Marble Institute of America, Westlake, Ohio. www.marble-institute.com **CIRCLE 241**

Roofing system manual
The Firestone Technical Specification Manual is available in a print binder, online via Firestone's Web site, or as an interactive CD. The manual includes a variety of information such as code approvals, details drawings, and warranty guidelines for the company's full line of single-ply and asphalt-based roofing systems. Design criteria, application illustrations, physical property charts, and specification tables for all of the systems are also provided. Firestone Building Products, Carmel, Ind. www.firestonebpco.com **CIRCLE 242**

Health-care storage solutions
A new brochure on acute-health-care storage solutions from Spacesaver Corporation illustrates the different high-density storage applications available for acute (inpatient) care facilities and describes the benefits of Spacesaver's rotary storage, shelving, and cabinet systems. Spacesaver, Fort Atkinson, Wis. www.spacesaver.com **CIRCLE 243**



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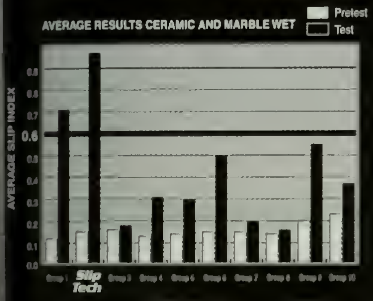

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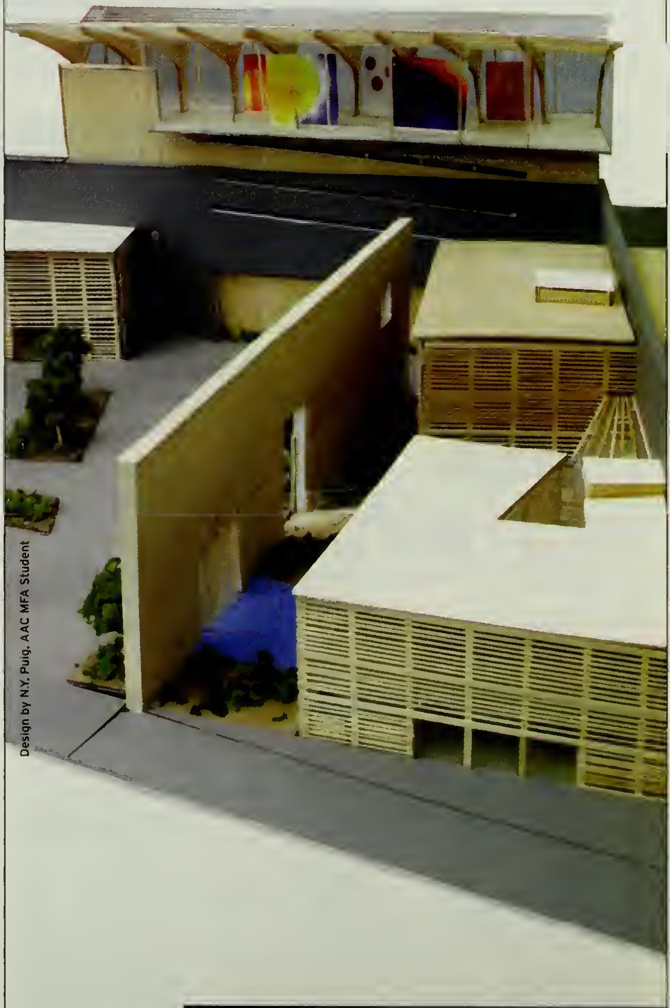
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InterEdge Technologies, LLC

Fire Safety Literature

1 General data

Discover the latest advances in fire-rated glass technology with InterEdge's new school safety kit, "Keeping Them Safe." The kit includes an informational brochure on the benefits of new technology fire-rated glazing in schools; InterEdge's latest Quick-Spec, so you can begin specifying clear, fire-, and safety-rated glazing right away; and a U.S. map and box of crayons so your kids can "Color It Safe!" Request yours today on the Web site.

www.firesafe-glass.com

150

ATAS International Inc.

Metal Crown Molding

5 Metals

ATAS International Inc. offers architecturally crafted metal crown molding to complement any building. The trim is manufactured in 12-ft. seamless lengths of .032 aluminum and is available in 29 standard colors to coordinate with any roofing system. Crown molding is formed to 3-1/2-in. and 5-1/2-in. typical profiles and can be applied to gable ends, dormers, rakes, eaves, frieze boards, or wall mounted under soffits. Ease of installation saves time and expense. Little or no maintenance required, as the premium finish on the pre-coated metal requires no painting. Have the convenience of metal with the appearance of wood.

153

SoftPlan Architectural Design Software

Fast Drawings, Professional Results 800-248-0164

Version 12
SOFTPLAN
ARCHITECTURAL DESIGN SOFTWARE

1 General data

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www.softplan.com

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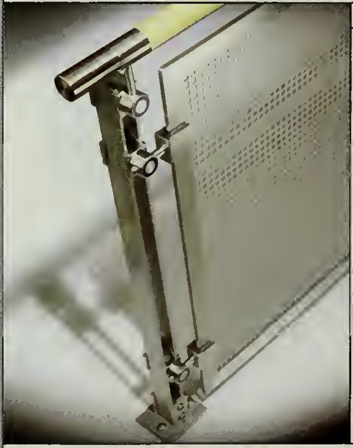
Handrail Design, Inc.

Stainless Pre-Engineered Railings 717-285-4088



5 Metals

HDI provides INOX railing system with top rails available in either stainless steel or various wood types. Infill options include glass, perforated stainless steel panels, or horizontal rails of stainless steel. A complete supply and installation service is available throughout North America, which includes INOX, Circum, HEWI nylon, and D Line™ railings. Designed to meet all applicable building codes and standards.

www.hdirailings.com

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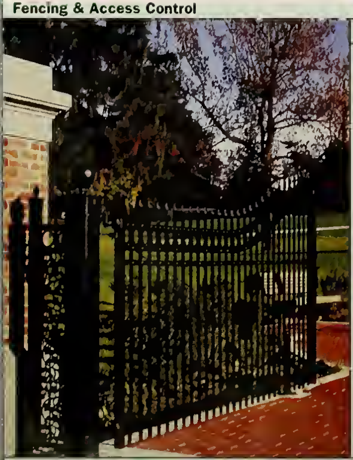
Master Halco

Fencing & Access Control 800-229-5615



2 Site construction

Master Halco has been designing and manufacturing the highest quality fence systems for more than 40 years. Let Master Halco's designs be a reflection of yours, no matter what type of fencing your project calls for. Choose from a complete line of estate gates, ornamental iron, aluminum, vinyl, wood, chainlink, and gate operators. To request a specification binder, please contact Master Halco. Email spec@FenceOnline.com.

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Laser Precision Cutting, Inc

Brackets, Plates & Gussets 800-514-8065

6 Wood & plastics

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6 Wood & plastics

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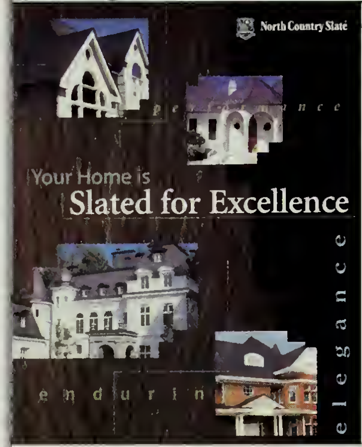

7 Thermal & moisture protection

North Country Slate offers a new brochure explaining the design and performance advantages of their remarkable roofing material to your residential customers. In six glossy pages, "Slated for Excellence" presents all the features and benefits to your client, the homeowner. Make sure you have this brochure on hand for your next discussion on slate roofing. Email info@ncslate.com.

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A/D Fire Protection

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Improved spray characteristics and ratings up to 3-hr. A/D FIREFILM®II permits designers to use the appearance of exposed steel with the steel protected from fire. The product is applied as a thin-film coating 0.4mm to 3.3mm (16 to 130 mils) thick. When exposed to fire it expands to form a meringue-like insulating layer up to 4-in.-thick. A/D COLOR-COAT topcoat is available in a wide range of colors.

www.adfire.com 157

Polyglass

Self-Adhesive Roofing Membranes 800-894-4563

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Known for innovative modified bitumen systems, Polyglass has developed and launched the next generation of roofing, POLYGLASS SA self adhesive membranes with ADESO Technology are the most innovative MOD BIT roofing product in the industry. POLYGLASS offers a wide range of SA self adhesive membranes with ADESO Technology, which are modified using a "true" APP or SBS resins on the top weathering surface, built with a reinforced polyester and/or reinforced fiberglass mat and an aggressive self-adhesive formulation on the bottom surface. Polyglass' U.S. patent-pending unique lapping system, SealLap, and U.S. patented granule-free system, FastLap, allow membranes to fit tightly and bond instantaneously to each other for a watertight roofing system.

www.polyglass.com 160

EcoStar

Cedar Shake Tiles

7 Thermal & moisture protection

Seneca Cedar Shake Tiles are produced using the most flexible recycled materials, which emulate the exact look of wood shakes, yet are durable and lightweight. Seneca Cedar Shake Tiles are manufactured at random widths of 6-in., 9-in., and 12-in. to create the traditional look of a wood shake roof. Unlike traditional wood, the tiles are available in nine different colors offering a unique architectural opportunity. Like all EcoStar premium steep slope-roofing products, Seneca Cedar Shake Tiles offer excellent advantages including class 4 impact resistance, the availability of a 50-year warranty, and a 100 mph wind warranty.

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Baldwin® Hardware

UL-Listed Locks 800-437-7448

8 Doors & windows

Now, Baldwin Estate Collection mortise locks and trim are UL-listed for use in multi-family projects, including high-rise buildings. For over a half-century, Baldwin has been known as a style-leader in single-family homes. The new UL listing will give architects and interior designers many more hardware options than were previously available for multi-family residential developments. To see the Estate Collection of UL-listed Baldwin interior and exterior hardware, call Baldwin or visit its Web site.

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8 Doors & windows

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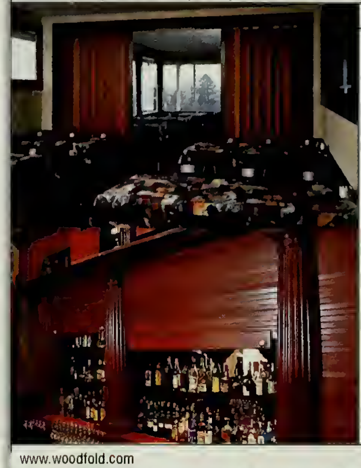

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www.woodfold.com 165

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VDS FRAMING SYSTEM

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The new VDS Framing System is based on European technology to provide a narrow profile, easy-to-install fire-rated solution to create "glass walls" with ratings of 60-min. or greater. Used in conjunction with SGG SWISSFLAM/SGG CONTRAFLAM, fire and safety rated glazing products, the VDS Framing System provides a transparent wall that acts as a barrier to radiant/conducted heat transfer. The narrow steel profiles are available either welded or knocked-down (K-D). Listed as a transparent wall, the combination of VDS Framing and SGG SWISSFLAM/SGG CONTRAFLAM allows for unlimited glazing area for use in location where the glazing exceeds 25% of the total wall area.

www.vetrotechUSA.com 163

Zero International, Inc.

Automatic Door Bottoms 800-635-5335

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www.zerointernational.com 166

Weather Shield Windows & Doors

Wood Interior Windows & Doors

8 Doors & windows

As the flagship line for upscale homes, Weather Shield is the company's most comprehensive line of windows and doors. Weather Shield windows and doors feature wood interiors and are available with either an extruded aluminum exterior or a wood brick mold exterior. Windows and doors come in ten long lasting Flexicolor exterior finishes, and are available in any of seven different wood species from the Custom Wood Interiors Collection™.

www.weathershield.com 164

Crossfield Products Corp.

Architectural Floor Surfacing

9 Finishes

Dex-O-Tex Micro-Topping is a thin-section, seamless polymeric floor surfacing that offers years of durability and low maintenance costs. The protective surfacing is less moisture sensitive than conventional sheet and tile flooring, and provides an attractive, wear-resistant finish. Micro-Topping can be applied over a wide range of surfaces, eliminating the cost of expensive removal. It can be antiqued or chemically stained with many beautiful colors to create a variegated shading of hues and allows the application of stencils and saw-cuts for limitless design options. A wide range of polyurethane sealers with varying degrees of gloss or slip-resistance will stand up to repeated floor cleanings.

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Ecophon CertainTeed, Inc.

Fully Concealed Ceiling System 877-258-7845

9 Finishes

The only worry-free, fully concealed ceiling system on the market, Ecophon Focus D provides an elegant yet practical solution to interior design challenges because there is no visible grid. Focus D allows repeated access to the plenum while maintaining the precision of the grid. Each panel is demountable for hassle-free maintenance. Great looks, durability, high recycled content, and unparalleled acoustic performance.

www.ecophon-us.com 168

Finlandia Sauna Products, Inc.

Sauna Packages

13 Special construction

Finlandia Sauna has manufactured exclusive and authentic saunas since 1964. Finlandia offers precut sauna packages and modular sauna rooms as an affordable luxury that can be included in any remodel or new construction. The company markets four all-clear western softwoods and is the only manufacturer to use 1-in. by 4-in. paneling, instead of the cheaper 1/2-in. by 4-in. material used by others. Finlandia's packages include all room parts, a choice of a Finnish made electric heater, a prehung door with choice of glass, and all necessary accessories. Finlandia's exciting new heater, the EverReady, is an excellent option for the person always on the go. The heater requires no 30-min. heat-up time.

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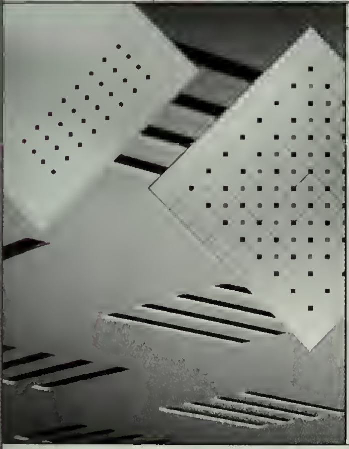
Gage Corporation, Intl.

Metal Wall Surfacing 800-786-4243



9 Finishes

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OpenAire Inc.

Retractable Roof Enclosures & Operable Skylights 800-267-4877

13 Special construction

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Cherry Tree Design

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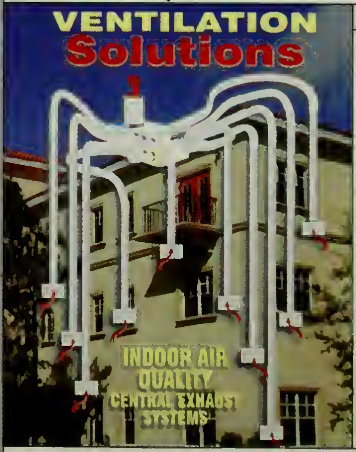

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ARCHITECTURE ASSISTANT PROFESSOR

Tenure-Track Position To Begin Fall 2004

Keene State College's Technology, Design and Safety Department invites applications for an Assistant Professor tenure-track position in Architecture to begin fall 2004.

The Technology, Design and Safety Department emphasizes teaching excellence and providing a strong connection to the professional workplace. The architecture program is a rapidly growing four-year bachelor degree program, which prepares students to enter graduate architecture programs, or to directly enter the workplace in architecture firms and other related areas. The curriculum promotes active learning, project and problem-based learning, and community partnerships.

A faculty member in this position would typically teach a range of courses, including a core of studio classes, and classes such as architectural history, CAD, and project-based courses. The position involves a twelve-credit teaching load per semester, advising students, serving on appropriate committees, and continuing to be professionally active in architecture.

Qualifications: Architect with experience in professional practice. M. Architecture and professional licensure are required for tenure. Teaching experience is preferred.

Send letter of application, curriculum vitae, contact information for three references to: Architecture Search Committee, Office of Human Resource Management, Keene State College, 229 Main Street, Keene, NH, 03435-1604. Inquiries about the position may be addressed to: Professor Peter Temple, 603-358-2978 or **ptemple@keene.edu**. *Review of applications is ongoing and continues until position is filled.*

Keene State College, New Hampshire's public liberal arts college was acknowledged this year by the Washington Post for its intellectual reputation and as one of 100 colleges deserving greater recognition. A member of the University System of New Hampshire, Keene State earns high praise for its excellent faculty, small classes, opportunities for student-faculty research and internships, community partnerships, modern facilities, and campus beauty. The College, which enrolls 4,300 undergraduate students from 26 states and 19 countries, is dedicated to promoting active learning within a liberal-arts context and expanding our students' intellectual, academic, and professional aspirations. Keene State is located in the historic downtown of Keene, N.H., a picturesque and bustling community of 26,000 and the cultural and economic hub for 75,000 people living in the state's scenic Monadnock region. Located along the dynamic Connecticut River Corridor between Amherst, Mass., and Hanover, N.H., Keene is an easy two-hour drive from Boston, the seacoast, and the White Mountains. To learn more about Keene State College, the University System of New Hampshire, and the Keene community, visit: www.keene.edu, www.usnh.unh.edu, or www.KeeneNH.com.

KEENE STATE COLLEGE

Keene State College is a member of the Council of Public Liberal Arts Colleges, a national alliance of leading liberal arts colleges in the public sector. The College is accredited by NEASC and its education programs are NCATE-accredited. As an Affirmative Action/Equal Opportunity Employer, Keene State College is engaged in an effort to build a community that reflects the diversity of society.

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Tom Morrow, Associate Vice Principal (Operations and Facilities)
Rideau Building, 207 Stuart Street, Queen's University
Kingston, ON, K7L 3N6, Canada

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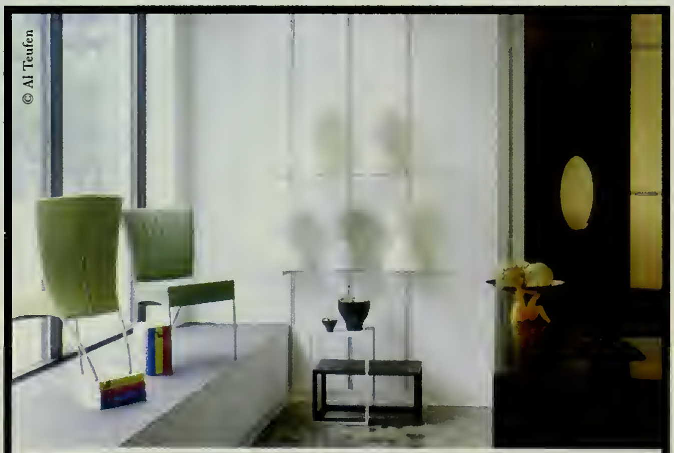

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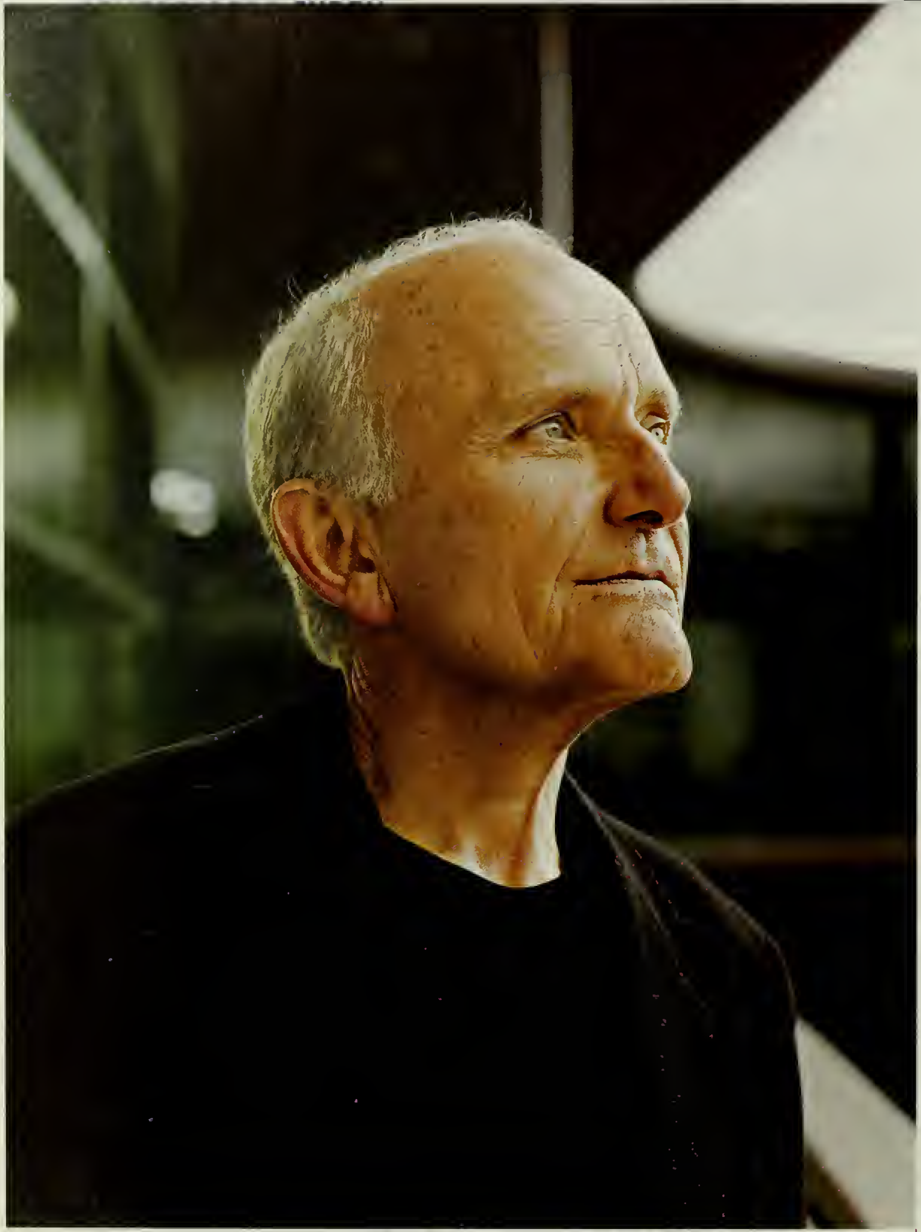

David Neuman: planning utopias where campus is king

Interviewed by Andrew Blum

Architects have been trying to impress David Neuman for years. As University Architect at Stanford since 1989, and at the University of California, Irvine before that, Neuman has overseen more than 5 billion dollars in campus construction, collaborating with the likes of Norman Foster, Frank Gehry, Robert Stern, Antoine Predock, and Ricardo Legorreta, all the while keeping a close eye on the university's historic fabric and an ear to its contemporary politics. This month, Neuman moves to the University of Virginia, where in addition to facilities planning and new design projects, he takes on responsibility for that ultimate slice of American campus—Thomas Jefferson's Academical Village.

Q: *You've been doing this for 25 years. How h you come to see the role of a campus archite*

I'm constantly absorbing the nature of the univers itself—not simply its mission, but its qualities a its characteristics, and its emphases at a given time and interpreting those into a variety of physical pla and projects. Because in my mind every project has responsibility for creating a campus, just as I think good urban planning every project has to do with ma ing a better city. I've always said, we are building campus, but every building is campus-building—w *building* as a verb. I subscribe to what [architectu historian and Stanford professor Paul V.] Turner said this whole dialogue of "what is the campus?": It's confined green space, a planned landscape tha utopian, that has some sort of unique qual that's ideal.

So even when you're thinking about commissioning in vidual buildings, like the recently completed Cl Center by Norman Foster, the campus as a whole has be more than an architectural petting zoo?

Oh yeah, it has to, because collecting individual ico isn't campus-building. The Clark center to me is such incredible building because it recognizes plan and lan scape at least as much as the architecture. That sa certain buildings, like the main quad at Stanford Memorial Church, take on an iconographic role. Ev university planning journals are using the term "bran ing" all over the place. But I think it's the spaces and t plan and the relationship that create something like urban fabric, where you can put in and take out pie and change them around, but the overall sense of t place will stay the same because the landscape and t plan—the ordering, if you will—will be here.

Has your notion of what's appropriate to the campu historic fabric changed over the years?

The biggest shift in my mind—and this has something to do with Stanfo but obviously it has to do with the world environment—is that things a much more transitory, even in the campus. We used to have this expressi "We're building for the next century." It's been replaced with, "We're build for 30 to 50 years." Because, really, it's the plan and the landscape that a going to be here a lot longer in terms of ordering whatever will come although the architecture is what people talk about.

Photographed by Eden Batki at Stanford University

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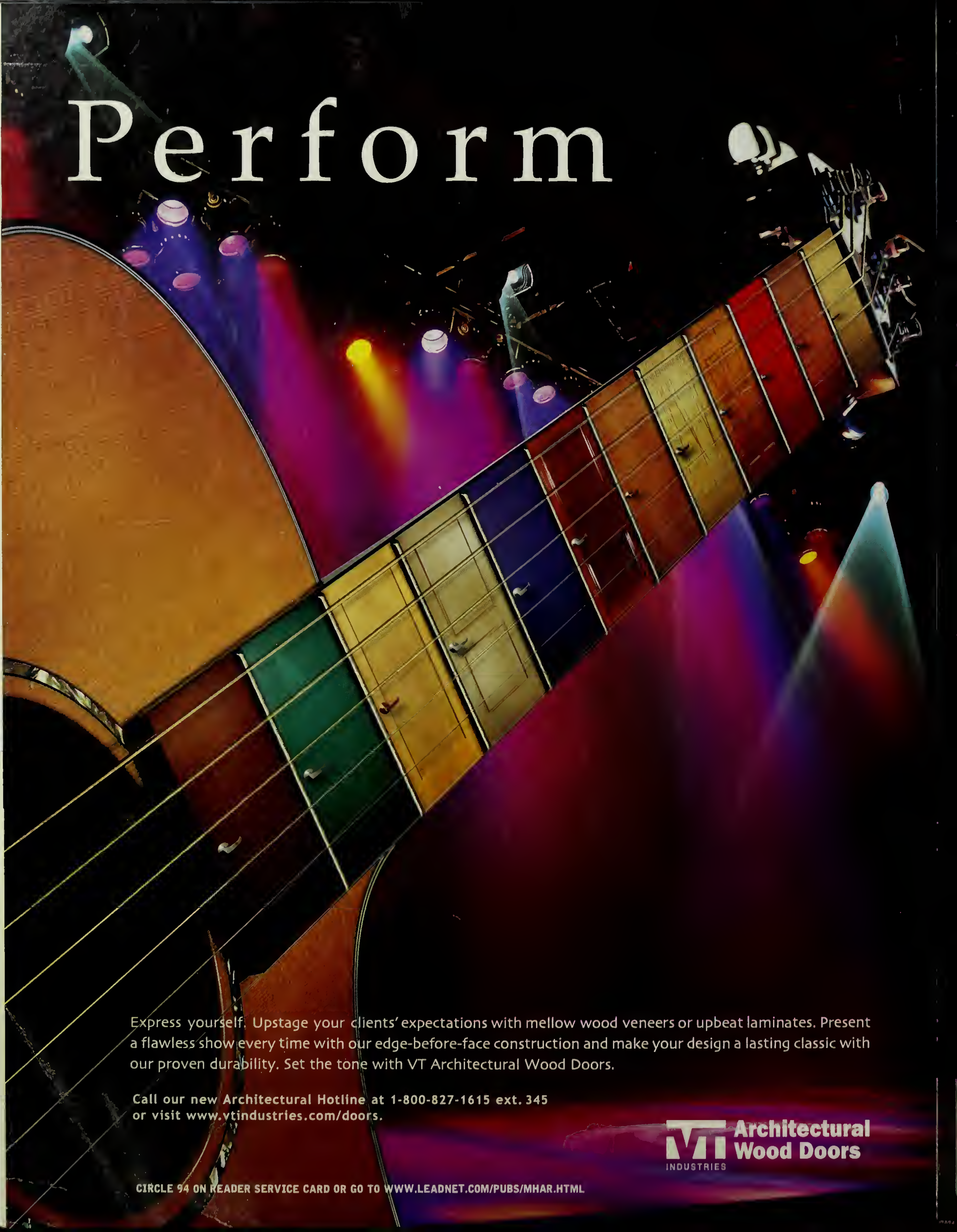

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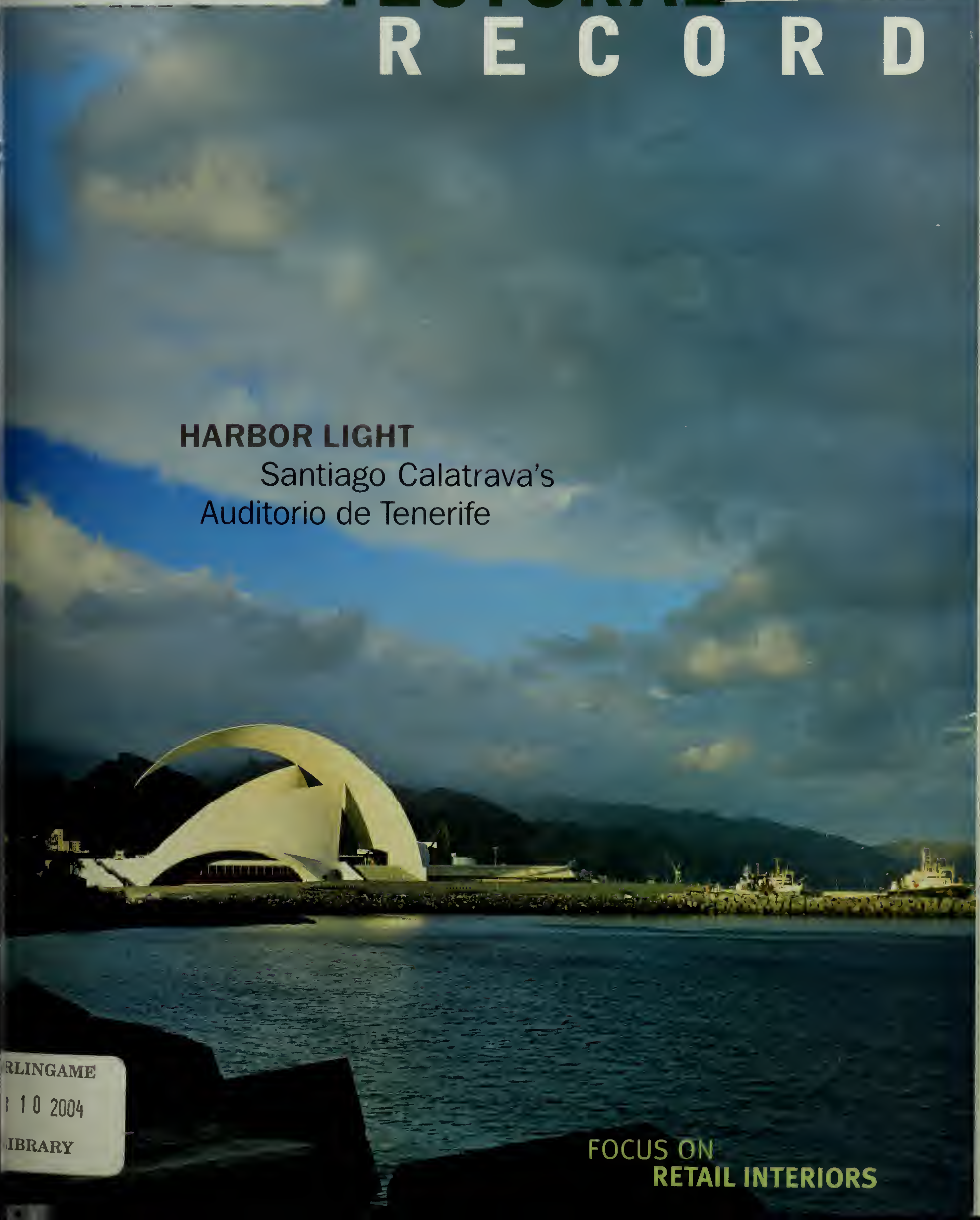

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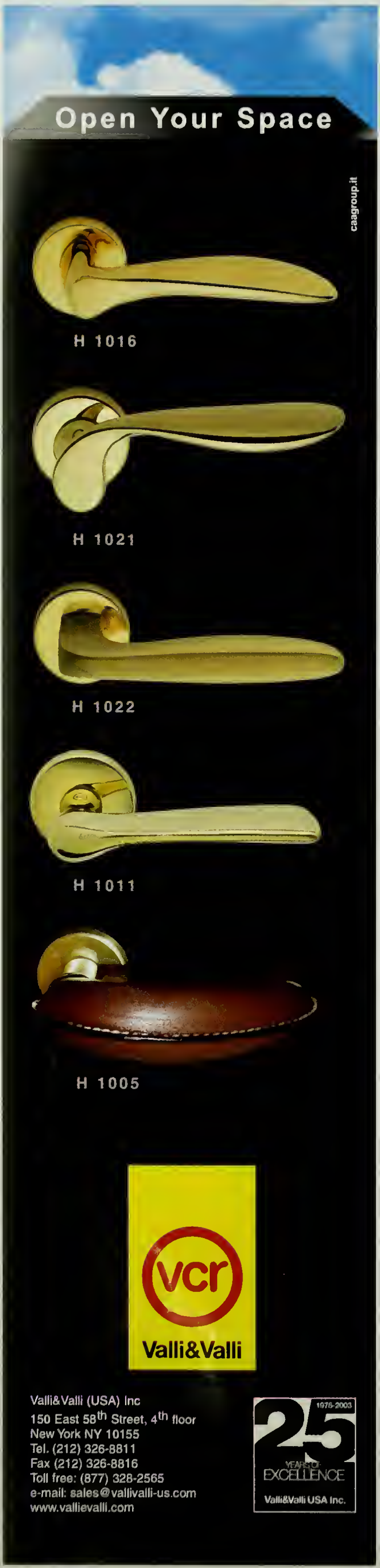

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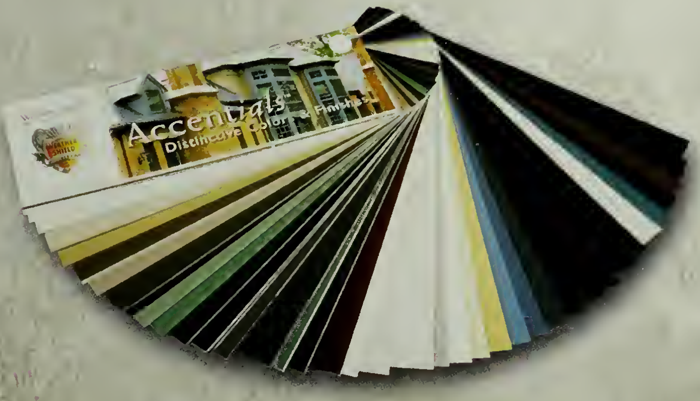

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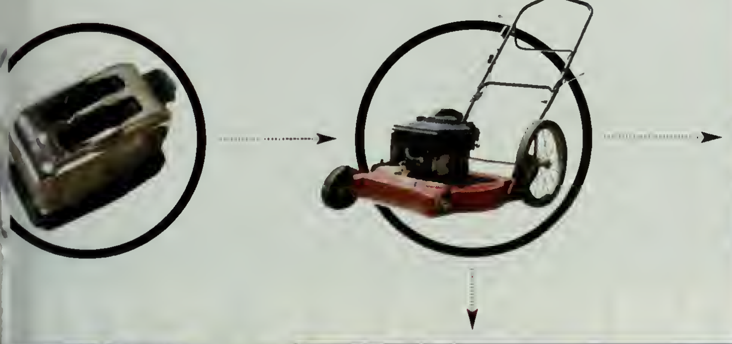

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You can find these stories at ***www.architecturalrecord.com***, including expanded coverage of Projects, Building Types Studies, and Web-only special features, such as "In the Cause of Architecture," and "Innovation," a section devoted to new materials and methods.

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February 2004

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Daily Headlines

Get the latest scoop from the world of architecture.

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Building Types Studies: Adaptive Reuse

What do you do when the original use of a building has run its course but the structure still stands? Adaptive Reuse is explored in this month's BTS. Perhaps it's beyond the normal scope to turn an old fish salting factory into a visitor's center, but it's being done. Beyond the three buildings featured in the pages of our magazine, our Web site features seven additional projects from all over the world.

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Innovation

On the heels of our successful Innovation Conference, we present the Innovation section of archrecord.com. The purpose of this section is to expose the unnoticed and evaluate potential for major change. Both new materials and new ways of combining old ones are in development. Advances in materials science, increased private and public alliances, and the infiltration of digital technology into everything have conspired to create pockets of experimentation and unusual collaborations among architects, engineers, and manufacturers. We invite our readers to continue their own investigation.

Photography © Alberto Ferrero

Retail Interiors

Shopping – either you love it or you hate it. The architects of this month's retail interiors heighten the visual experience regardless of your stance on the activity. Whether you're buying high-end luggage, stylish clothing, or tile, the interiors of these stores beckon you to spend more time and money in these retail establishments. **Virtual tours** of this month's Retail Interiors are exclusive to our Web site.

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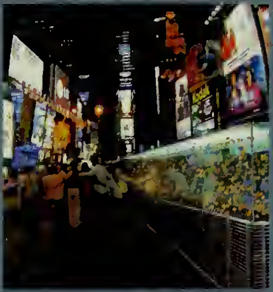

Courtesy Della Valle + Bernheimer Design

archrecord2

The architect-client relationship is a standard consideration in an architect's of work. This month's archrecord2 explores non-traditional relationships in the world of architecture. Design architects from DellaValle + Bernheimer Design have had their share of working ties. But in their newest project, they explore the familial side in a house extension. Work architect Linda Samuels takes her students for a ride and explores relationships formed on the move and on the road.

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Lighting

This quarterly section reveals how lighting designers and architects are using new lighting techniques in innovative ways to make lighting function as an integral component of space, whether as a signature visual element or an inherent wayfinding device.

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Digital Practice

This quarterly digital section features the digitial revolution in museums, research on digital fabrication, a green residential tower that has wireless Net power, and digital tools that aid carpet and textile design. Digital products include management tools, online resources, and design software.

World Trade Center

Rebuilding News. Get the latest updated coverage on the rebuilding process with news and insight.

Receive CES Credits Online

Read *Record*'s building science features/continuing education self-study courses and file for CES credits. This month learn and receive credit on the latest technology usage in university and industry research facilities.

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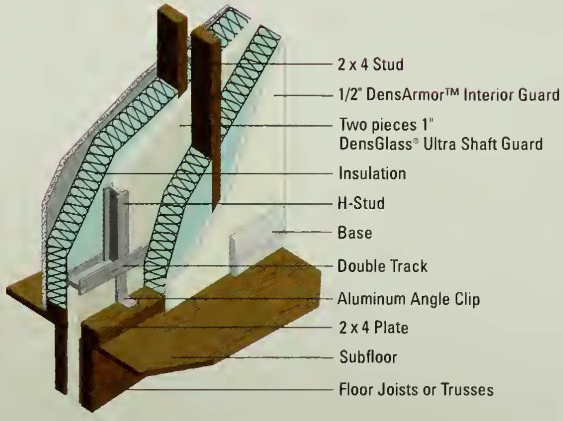

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Editorial

Starlight

By Robert Ivy, FAIA

One of the most persistent complaints among architects concerns media attention to the so-called "stars." The rap, a deep-seated unhappiness that so much attention is lavished on a very few, con- ns the tiny sliver, perhaps 1 percent of all architects, who dominate the hitectural airwaves. Why, the lament goes, do those familiar faces gobble all the oxygen in the room and hog all the attention? Why do they get the m jobs? Why not, the remarks imply, pick me?

Often their work seems willful or unrealistic, while your responsible rk is bathed in regular, laborious effort to meet client needs or match excru- tingly tight budgets. They, it appears, inhabit a rarified realm of travertine l stainless steel, while your own projects may feel weighted down with the its of concrete block. Repeated emphasis on individuals diminishes the role nwork plays in contemporary practice; one-off, spectacular buildings draw ntion away from careful urban planning. The list of complaints drones on, it comes down to this: They get the glory, you do the work.

Historically, the star phenomenon is relatively new in America. After I. Richardson, Frank Lloyd Wright enlarged the burgeoning tradition, self- teously invoking the title "genius," a term with roots in the Renaissance that flourished in 19th-century Romanticism, which is incomparable for purpose of self-aggrandizement: Who could argue with genius? Today, the lia feeding frenzy deepens the trend, projecting a familiar litany of names images onto our pages and screens. Always the same names.

Why? Truthfully, we have to admit, fame doesn't occur by hap- stance. The stars, our stars, operating at a high level of accomplishment, possess qualities we admire, including real talent, application of effort, nizational ability, savvy, media friendliness, and intellectual acumen. In ition, often these architects bring a sense of courage that most of us —exploring ideas, testing new systems, voyaging first where most of us not go. In a sense, they are our explorers.

Consider those represented in this issue. Lord Norman Foster defines vpe, with buildings around the world soaring vertically or horizontally, conceiving and creating structures that operate like animate laboratories, combining architecture, sociology, and biology. His work is capable of redirecting our thinking while offering clients and the larger public more comfortable, adaptable ways of living and working. Yet stars need not be flamboyant. Fumihiko Maki's masterfully detailed and pared-down projects offer lessons in mannerly, urban restraint, rigorously detailed and consistently in harmony with their neighbors.

Santiago Calatrava, who has just unveiled his plans for New York's new transit hub, continues to amaze and confound us with bold, expressive new forms that speak to us in an idiosyncratic voice, reflecting a consciousness both educated and individualistic. His urban projects, such as the opera house in Tenerife, often combine engineering prowess with artfulness, setting and memorably defining place. No one will forget the opera house, or Tenerife, again.

If you thought you had pegged Richard Meier, think again. This master of the Modern idiom continues to evolve as an architect. His Jubilee Church, a segmented spherical concrete structure, suggests new meaning for the term "building blocks." Who might have expected these lyrical, curving forms from the master of the gridded block? The stars, it seems, can surprise and confound our preconceptions.

Not that we should diminish our concerns. All-too-human, the men and women occupying today's architectural stardom cast different kinds of power, not all benign: Great stars can make bad buildings. At the best, as Cynthia Davidson proposed in this magazine [RECORD, May 2003, page 144], fame, like a flame, attracts. The public remains fickle, as do we. Yet you have to admit: Some individuals among us consistently produce work worth examining, in these pages and in the broader media. Their work, when it succeeds, attracts attention by widening audiences for architecture with a type of gravitational pull that might seem planetary. Call them stars, or call them what you will.

Robert Ivy

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Letters

naster plan that worked

ınnot agree more with Robert
s January editorial [page 15].
eskind satisfied most of what
memorial should do. Why not
him the opportunity to create
idea? His design for the memo-
space is very strong. I would
be surprised if his final version
he memorial would have been
e compelling than his concep-
l design.
effrey Silberstein, AIA
ray Beach, Florida

tria-iopithecus

not been to Graz, Austria, and
n the new Kunsthaus [January
4, page 92] in person. But I
d the photos of the building,
a grotesquely swollen larvae
to 18th-century, pastel-colored
que buildings, to be immensely
"Are museums suffering from
itectural overload?" More like
re indigestion.
upert Essinger
Diego

we there yet?

d with some interest the article
ur December 2003 issue enti-
"Thomas Speigelhalter turns
ected ruins into designs with a
cience" [page 64]. Now that
have shown us the before pic-
perhaps next month will bring
after.
ederick Farmer
tle

n't heart New York

ite the fact that 70 percent
anhattan's decidedly bland
tecture was built before 1945;
ite the fact that four out of the
oroughs of New York City con-
to struggle with poverty and
decay; and despite the fact
other major international cities
ally provide architectural inno-
n instead of the perpetuation of zoning, regulatory, union, and community restrictions, insular, introspective New Yorkers continue to tend toward self-aggrandizement. After four years of life in New York, it's clear to me that the PR is better than the product.

It is ironic, then, that your magazine should laud the New York grid system [Critique, December 2003, page 49], the very system that has strangled the city for 100 years and will no doubt continue to do so. If New Yorkers actually got out more (other than to Florida), they would realize what a dirty, run-down, repetitive, and vastly nondescript city they actually inhabit. They would realize that every major world city equal to New York in size, notably Moscow and Hong Kong, has the energy, artistic vitality, and eclecticism that comes from a congregation of a nation of people in one place. They might even realize that the very icons that keep New York architectural enthusiasm alive are holdovers from an era current architects want nothing to do with.

New York is not unique, or even especially pleasant to live in. Only New Yorkers think so. That, above all else, is what sets them apart.
—Seth Scott
AGM Architecture and Design
Millburn, New Jersey

Off the grid

Regarding Mr. Campbell's Critique of New York's genetic code, he seems to forget four fundamentally New York conditions that exist within this grid: (1) There is a big hole in the middle of this anonymous and interchangeable grid, i.e., Central Park; (2) There are extremely strong edges to this grid, i.e., the East River and the Hudson River; (3) There is a very long diagonal that runs through this grid and creates square after square, i.e., Broadway; (4) There are fundamental differences between the nature and character of the vertical lines and the horizontal lines in this grid, i.e., streets and avenues. All of these conditions seemingly contradict Campbell's propositions that "there is no prominent location on a grid" (Times Square?); or that "every place is anonymous and interchangeable with every other place" (Central Park West equals 11th Avenue); or that "all sites are, in principle, equal." In principle, perhaps they are. In New York, they most definitely are not.
—Christopher Mulvey
Via e-mail

Safety first

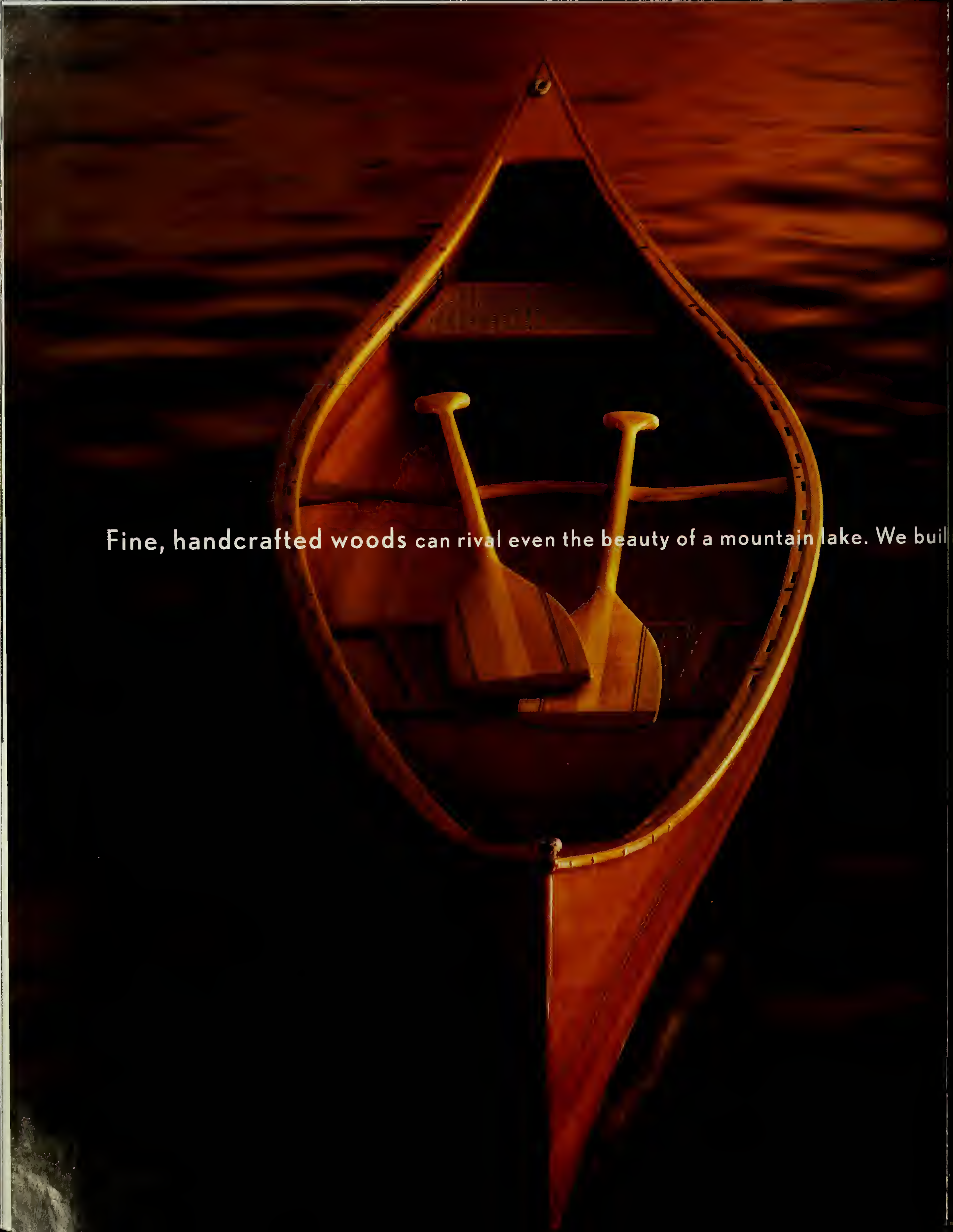
As I was looking through the September 2003 issue of RECORD, I had to stop and write this letter after looking at the photographs of a live/work loft designed by Marpillero Pollack Architects [Record Interiors, page 148]. Not that I am picking on this design, as the space was architecturally stimulating. What I see constantly in your magazine are designs of buildings that appear to totally disregard the building code, particularly as it pertains to requirements for stairs. The Marpillero Pollack design, for example, shows interior stairs ascending to upper lofts with no handrails at either stair and one of the stairs completely open on one side. I realize that architects sometime struggle with elements that, although mandated by building codes, can sometimes interfere with the aesthetic achievement they are trying to reach in their buildings. However, as an architect who has been in code enforcement for the past 15 years, I find it disturbing when architects ignore these life-safety elements so critical to creating a safe building environment.

Perhaps in this design handrails were added after the photographs for publication were taken. If not, it would seem to me that there are serious flaws in the plan review and building inspection process within various jurisdictions. A noted architect who was the keynote speaker at an AIA chapter meeting I attended some years ago in Pennsylvania stated: "Architects are not sued because their buildings are ugly, they are sued because their buildings don't work." Buildings that fail to comply with nationally recognized standards for building safety adopted by the jurisdiction in which they are built won't work. Am I wrong?
—Reginald Fuller
Idaho Falls, Idaho

Corrections

In the January issue of RECORD, in the archrecord2 column [page 48], architect Tom Farrage's name was misspelled. Also in January, in News ["On the Boards," page 32], the story about Cincinnati's Underground Railroad Museum should have credited BOORA Architects of Portland, Oregon, as lead designer of the project. Victoria Newhouse's observation regarding the second-floor exhibition spaces at the Kunsthaus in Graz, Austria ["Are museums suffering from architectural overload?," January, on page 91], should read "curatorial and fire concerns resulted in a very dark space with insufficient lighting." Also in January, in the article about the Mori Art Center [page 107], the credit for photos on page 108 should have gone to Risaku Suzuki (top) and Mori Building (bottom). In December 2003 Product Reports [Digital Products, page 167], the cost of the ZPrinter 310 3D printer by Z Corporation was reported incorrectly. Its purchase price is around $30,000, but the printer can be leased at a lower price.

We appreciate your comments. Send letters to editor in chief Robert Ivy at rivy@mcgraw-hill.com.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Record News

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Iran quake destroys architectural treasures p. 26
Athens Olympic venues to be ready on time p. 28
La Fenice opera house rises again in Venice p. 30

REBUILDING LOWER MANHATTAN

Reflecting Absence chosen as World Trade Center memorial

n January 6, the Lower Manhattan evelopment Corporation selected *eflecting Absence*, which uses he Twin Towers' footprints as sites or large, sunken reflecting pools, as he winning design for its World rade Center Memorial Competition. n updated design was unveiled in owntown New York on January 14.

The original plan was con- eived by Michael Arad, a young rchitect who works for the New ork City Housing Authority's design epartment. Arad recently chose eteran landscape architect Peter alker to help him refine the plan.

The reflecting pools in Arad's esign sit 30 feet below street level ithin a large plaza, while a con- ant stream of water cascades own the pools' surrounding walls. sitors can visit the pools, looking rough a sheet of water, via escending ramps, while the names victims are inscribed on short alls adjacent to each pool.

Jury chair Vartan Gregorian aised the plan's ability to "make e gaping voids left by the Towers' struction the primary symbol of ss."

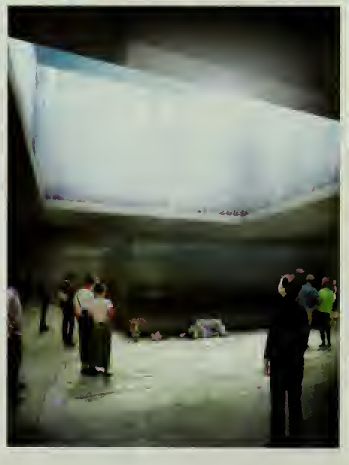
The updated design gives visi- rs access to the "slurry wall" of the iginal Trade Center buildings along e west side of Ground Zero. It also features an underground interpretive center, which will include artifacts from the September 11 attacks; a small, skylit space under the northern reflecting pool, 70 feet below grade, housing the unidentified remains of September 11 victims; a dense grove of deciduous trees and plantings on the surface of the memorial plaza; a random ordering of the names surrounding the reflecting pools; and the removal of a large building that Arad had intended to be built to the west of the site.

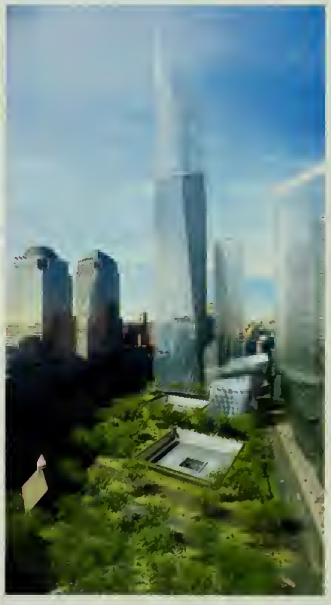
Arad, 34, grew up in Israel, the U.S., and Mexico, and served in the Israeli Army. He attended Dartmouth College and studied architecture at Georgia Tech. He is now working on designs of two police stations in New York City.

Walker, founder of Peter Walker and Partners Landscape Architecture in Berkeley, California, has contributed to the Millennium Park at the 2000 Olympic Games in Sydney and the Nasher Foundation in Dallas. He was brought on by Arad (at the suggestion of the memorial jury) only weeks ago, and helped form a far more lush, green-filled space than Arad had originally proposed.

Many of the victims' family members seemed pleased with the updated plan, praising the additions of bedrock access, an interpretive museum, and a private space for unidentified remains.

Some complained that the street-level park (designed to integrate into the neighborhood, the jury explained) no longer provided a "buffer" between the memorial and the noise of the surrounding streets, as Daniel Libeskind's first sketches for a sunken space had offered. Others felt the names in the plan (randomly ordered as the deaths occurred randomly, the jury said) should be grouped in a clearer order. And Mary Fetchet, who lost her son Bradley in the attacks, wished to have artifacts, such as part of the tower's steel skeleton, above ground, saying it would be an immediate reminder of the scale of the attacks. *Sam Lubell*





Arad presenting his plans (top left); the memorial from above (right); the view from the skylit space below (left).

TC Briefs

imshaw and Arup working Fulton Street Transit ation Another A-list team is ietly working on a major public oject in downtown New York. cholas Grimshaw and Partners orking with New York architect Harris Pomeroy Architects) and gineering firm Arup are designing the Metropolitan Transit Authority's Fulton Street Transit Center, which will connect twelve subway lines, currently accessible through six different stations, to the PATH Station at the World Trade Center site a block away. The corridor connecting the center to the PATH station will be one block long, approximately 40 feet wide, and 14 feet high. "We are very happy to be in the shadows," says David Palmer, Arup principal. *Alan G. Brake*

New York New Visions joining LMDC team The Lower Manhattan Development Corporation announced that New York New Visions, a coalition of 21 architecture, planning, and design organizations that has made recommendations for Lower Manhattan development, will work with the LMDC and the Port Authority to refine commercial design guidelines for the World Trade Center. *S.L.*

Memorial gets price estimate An unidentified Manhattan development official told the *New York Post* that the World Trade Center Memorial will cost roughly $350 million. *S.L.*

REBUILDING LOWER MANHATTAN

What they're saying

Responses to the World Trade Center Memorial and to the World Trade Center Freedom Tower:

WORLD TRADE CENTER MEMORIAL

"Oy Vey!" —*Frank O. Gehry, FAIA, commenting on all the finalists' designs*

"A frenzied week of sketching in a "forest" and adding color to computer images can't save *Reflecting Absence* from its obsessive morbidity." —*Steve Cuozzo,* New York Post

"Of the designs officially adopted for the site so far, this is the only one that approaches artistic stature." —*Herbert Muschamp,* The New York Times

"A classical World Trade Center memorial that honored the dead, the survivors, the heroes, and the city itself, rather than the architect alone, would only look ridiculous in the context of Libeskind's egotecture. So it is not altogether inappropriate that all of the memorial finalists are Modernist abominations." —*David Brussat,* The Providence Journal-Bulletin

"At least and at last the news about the memorial is good: A very promising design, the best of the eight finalists, won … With great clarity, Arad has counterintuitively cultivated the unfathomable—that it is difficult to put our minds and hearts around the events of that day. He has mystified the site. —*Joseph Giovannini,* New York *magazine*

"The World Trade Center memorial design is deeply flawed, both cluttered and minimalist to the point of meaninglessness." —*Inga Saffron,* Philadelphia Inquirer

"The transformation of plaza into park is at once welcome and necessary. It distances the sacred precinct of the sunken pools from the intense life of the surrounding city and yet, paradoxically, it also helps make the memorial grounds a more vivid part of everyday city life. —*Benjamin Forgey,* The Washington Post

"For years, the Twin Towers were loathed as antiurban objects standing in a huge, windswept plaza. By overgreening the memorial plaza and suburbanizing what should be a sharply defined urban space, *Reflecting Absence* makes a new version of the same mistake." —*Blair Kamin,* Chicago Tribune

"Of the eight finalists in the memorial competition, *Reflecting Absence*, by Michael Arad, was the blankest, the most forbidding, the most oppressively generic—and, in a way, the most faithful to the Modernist spirit of the World Trade Center. —*Justin Davidson,* Newsday

"I would issue a timeout. None of the designs won the hearts and minds of the people." —*Rudolph Giuliani in* The New York Times

"There seems something almost haphazard about this process. Future generations will hold Governor George Pataki responsible —we can't sacrifice our heritage just to get something built quickly." —*Anthony Gardner, head of the Coalition of 9/11 Families, talking to the Associated Press*

FREEDOM TOWER

"In its present form, Freedom Tower is much closer to being a piece of architecture than the public had any right to expect." —*Herbert Muschamp,* The New York Times

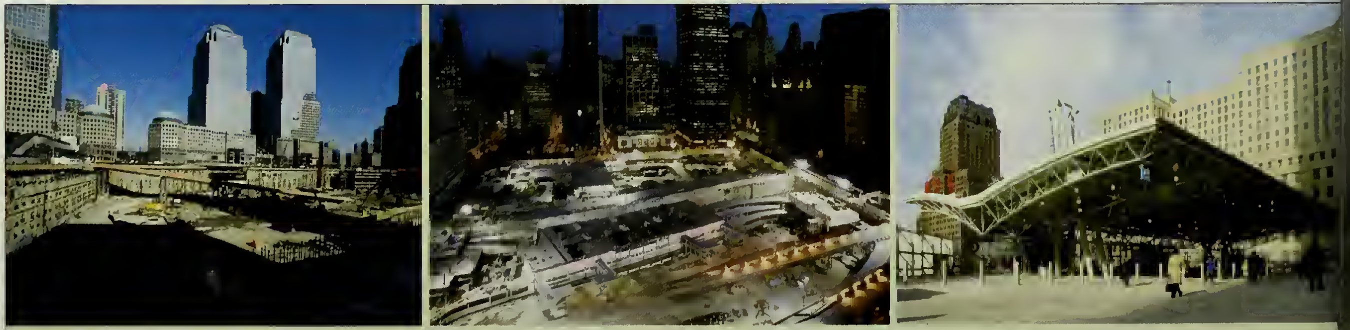
"I find it very awkwardly proportioned. It seems to me little more than a slicked-up developers building with some vague echoes of Libeskind's original plan." —*Martin Filler,* The New Republic

"The design would produce a world' tallest building that would strive for—without reaching—great aesthetic heights … This is not the skyline icon that New York and the nation deserve in the aftermath of the September 11, 2001, terrorist attacks." —*Blair Kamin,* Chicago Tribune

"The model presented yesterday is start—closer to the hundredth draf than to the first, but still far from a finished work. It represents a hurried compromise between architect with radically different sources of inspiration." —*Justin Davidson,* Newsday

"The collective reaction to the design was "it's not as bad as we thought." Unfortunately, it's not as bad as we thought is about as goo as it gets at Ground Zero. And it is not nearly good enough." —*James S. Russell in* Arts Daily

"It isn't the provocative line we hoped to see, yet it's still without a doubt the most imaginative tall building in the world." —*Douglas Davis,* Newsday



Progress at Ground Zero

The photo on the left depicts Ground Zero as it stood in July 2002. The next two pictures depict the site as it looked in January 2004.

PATH's World Trade Center Station, opened on November 23, can be seen in the foreground of the center image, while the canopied entrance to the station can be seen on the right. The $253 million temporary station includes five tracks and three platforms. The space is utilitarian but effective and light-filled. Visitors enter and exit via the center of Ground Zero, a very emotional experience for many first-time visitors.

At press time, Santiago Calatrava's $2 billion permanent transit station's design was scheduled to be unveiled on January 22. *S.L.*

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REBUILDING LOWER MANHATTAN

OFF THE RECORD

Moshe Safdie has been selected by the Free Library of Philadelphia to design the renovation and expansion of its Central Library.

Gerard (Guy) Geier, AIA, is leaving his job as a principal at NBBJ to become the C.E.O. of Vitra USA.

The Museum of Contemporary Art/ Denver has selected six finalists for the design of a new permanent building. The finalists are: TEN Arquitectos (Mexico) with Humphries Poli Architects (Colorado); Snohetta (Norway); Rick Joy Architects (Arizona); Predock_Frane (California); Gluckman Mayner Architects (New York); and Adjaye/Associates (UK).

Lord Norman Foster's former right-hand man, Ken Shuttleworth, who left Foster's firm last month, is starting his own practice, where he will be joined by three former colleagues.

Temple University has chosen Steven Holl of Steven Holl Architects in New York to design its new Tyler School of Art building in Philadelphia. The $75 million project will relocate the art school from its current campus in Elkins Park, Pennsylvania, to Temple's main campus.

Indianapolis's Eiteljorg Museum has unveiled plans for a $20 million expansion, bolstering its exhibition space and educational facilities. The 73,000-square-foot Eiteljorg opened in 1989 as the only Midwest museum with extensive collections of American Indian and Western art.

The Municipal Art Society, The Port Authority of New York and New Jersey, and JetBlue Airlines have reached a tentative agreement to use Eero Saarinen's TWA Terminal at JFK Airport as an entrance to a new terminal.

Inside the jury: An Interview with James Young

World Trade Center Memorial jury member James Young is professor and chair of Judaic Studies at the University of Massachusetts, Amherst. He has written several books about memorials, including The Texture of Memory *(Yale University Press, 1994) and* At Memory's Edge *(Yale University Press, 2000).*

ARCHITECTURAL RECORD: *Why was* Reflecting Absence *chosen as the winner of the World Trade Center Memorial competition? Can you describe the process?*

James Young: We kept bringing *Reflecting Absence* forward because we liked its simplicity, its Minimalist aesthetic, and how it wasn't too cluttered. The voids themselves really seemed to be in keeping with a postwar vocabulary that attempted to articulate absence, which is a very difficult thing to do. They made the footprints themselves the memorial, in their geometric form, and that was very important. We saw that as the most authentic reference to the site, even more authentic than bringing remnants back. The downward flow of the water seemed suddenly to remind you of the towers' implosion. It was all suggested in the design. Had the elements not been integrated or coordinated, then it would have been something else. But we thought that they worked and they balanced with something that all of us were looking for all along.

AR: *What finalists did you also consider near the end?*

JY: The last day came down to three finalists: *Memorial Cloud*, *Garden of Lights*, and *Reflecting Absence*. The *Garden of Lights* idea became too complicated, and we thought they were doing too much. The cloud was the most visually exciting, but it didn't have the memorial logic in it that we felt the void had. It seemed to be more art and architecture for itself and less to do with the events. We were very sensitive in trying to anchor the form of the memorial as deeply as we could in the events, and *Reflecting Absence* did that the best.

AR: *How and why was Peter Walker coupled with Michael Arad?*

JY: The LMDC gave all the finalists a list of landscape architects, civil engineers, lighting architects, and others to choose from. We didn't say they had to do anything, but it was strongly suggested. Michael chose Peter within about 10 days of the announcement of the finalists. At our suggestion, he had already begun working on some of the landscaping changes that Peter has helped add.

The WTC Memorial Jury. James Young is second from left in the top row. Other jurors include Maya Lin (second row, far left) and Michael Van Valkenburgh (top row, far right).

From the beginning, we saw the process as advise and consult, a proactive jury. We saw this as a dialogue and conversation from which eventually a design emerged.

AR: *Unlike Daniel Libeskind's original vision, which sunk virtually the entire site, much of the winning memorial's design, particularly its park, is at or above grade level. Why was this decision made?*

JY: The jury felt quite strongly that we would encourage the designers to bring things to grade. We saw pretty big problems with leaving large parts of the slurry wall depressed. It would be a big canyon, separated from the neighborhood. We wanted it to be part of the neighborhood. We still think the trees will provide a canopy that will buffer it from the rest of the neighborhood.

AR: *Many have proposed putting artifacts above ground instead o in an underground museum. Was this considered?*

JY: We thought scattering artifacts on the face wasn't in keeping with the entire project. They felt like add ons. We thought these things woul be better preserved and contextua ized down below, where you could tell the stories, have a space for contemplative meditation, and con trol the environment. I think there is still a possibility of Michael scattering a few objects within the tree or groves; we just want him to explain why he put those things there.

AR: *Do you think this decision was made too soon?*

JY: I think everyone on the jury thinks that we don't kno what a memorial means yet but we also know that as a centerpiece to redevelopment, this has to be done before anything can get buil Can you wait 10 years befor it really sinks in and go ahea and build? The answer was no. I think we all want to see memory accrue slowly over time, but there was a built-in tension to get it planned. We really don't know to this day what the larger historical meanings are. We know they will change over time. The memorial should be able to accommodate it own evolving meaning over time.

AR: *So you didn't feel rushed by the LMDC or the governor?*

JY: They let us take the time we wanted, and we weren't hurried by them. We could have taken even longer. *S.L.*

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Along with lives, architectural treasures lost in Bam, Iran, earthquake

Bam, Iran's once majestic citadel, which was all but destroyed by earthquak

The earthquake on December 26 centered near Bam, Iran, is estimated by the Red Cross to have killed more than 25,000 people, making it one of the most devastating tragedies in recent memory. Sad evidence of the disaster lies in the rubble of the city: The quake possibly destroyed as much as 85 percent of the town's buildings, including some of the most precious architectural monuments in the world.

Rated at 6.5 on the Richter scale by the U.S. Geological Survey, the earthquake rocked many of the city's historic structures, including the town's fabled citadel, which was particularly badly damaged.

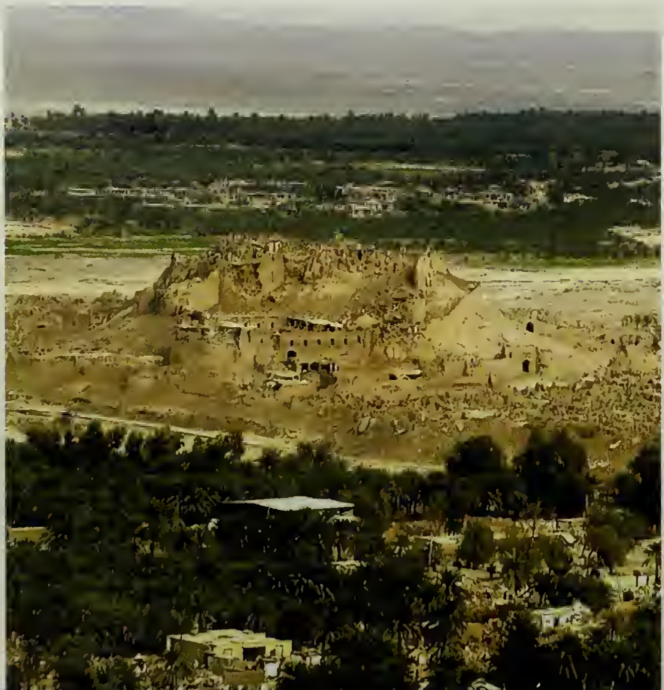
According to the Iranian Cultural Heritage Organization, the citadel, known as Arg-e Bam, at about 1,700-by-1,400 feet, covered approximately 2.3 square miles. Built on a huge rock, the towering complex contained unbaked mud-brick components dating back more than 2,000 years, and it had been continuously developed until about 180 years ago.

An International Council on Monuments and Sites (ICOMOS) mission visited the city in early January, confirming the almost complete devastation of the citadel and 30 other historic monuments, including the town's famous bazaar.

Most eyewitnesses and experts, including Graham Payne, director of Rapid UK, in Hardwicke, Gloucester, a British search and rescue organization at the scene, claim that the worst-affected buildings were made of mud brick, which then reverted to mud. "As the buildings have collapsed, the mud has gone down to sand. This is what killed so many people," he said.

But Ed Crocker, a board member of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and head of Crocker Limited, a U.S. company specializing in restoration of earthen buildings, says that some ancient adobe buildings appear to have held up well, according to satellite photos. Worse hit, he says, were newer buildings made of soft brick, a construction he describes as "shoddy." He observes that, in the end, "It's proven that earthen buildings can survive extremely well in seismic zones."

The ruined remains of the citadel, as seen from above.



Mohammad Ehsani, a professor of civil engineering at Arizona University who was in Bam just before the earthquake, agrees that many newer buildings crumbled, but thinks the older buildings didn't fare any better: "When you get near the epicenter of an earthquake of that magnitude, any structure that is not reinforced is going to crumble," he says.

Regardless of the reasons for the buildings' destruction, the Iranian preservation community and international preservation groups are working to help save what is left of Bam's historic fabric and are beginning to rebuild it. UNESCO, ICOMOS, and the World Monuments Fund (WMF) have all pledged money and expertise. Experts say they are encouraged because Iran, which has pledged to rebuild the citadel, has many skilled heritage experts, in sharp contrast to nearby Iraq, where most had fled the country under Saddam Hussein's rule.

Groups like the WMF stress the importance of shoring up historic structures to prevent destruction. WMF President Bonnie Burnham notes that many "countries that have more historic urban fabric tend not to look at [seismic-safe construction] until a catastrophe occurs."

Ancient structures like the earthen bricks in Bam can be shored up with metal and wood, as well as products like "Quake Wrap," an adhesive, fiber-based polymer developed by Professor Ehsani that hardens soon after application.

Construction codes, adds Ehsani, need to be enforced in Iran, which has been notorious for looking the other way. Resulting poor constru tion techniques have prompted officials to consider relocating Iran capital from Tehran, because many buildings there are vulnerable to a major quake. *S.L. and Peter Rein*

Architecture for Humanity, a nonprofit organization founded to promote architectural solutions to humanitarian crises, has put out a request for any architects, designers, or engineers, preferably locally based, to help design long-term transitional housing for Bam residents left homeless by the earthquake. The organization is also directing financial resources to aid in the rebuilding effort. Those interested in helping should e-mail info@architectureforhumanity.org, or go to www.architectureforhumanity.org. *S.L.*

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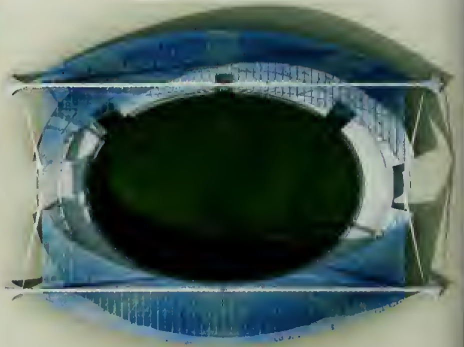
Athens Olympics are in shape to be ready on time



Olympic venues include the central plaza (top); the Olympic Village (above); and the Olympic Stadium (construction, below left, and rendering, below right). Nonstop construction has increased the likelihood of a timely finish.

Skeptics have long speculated that the Athens Olympics would be remembered not as a return to ancient Greek glory, but as the least-prepared Olympics ever. It almost happened: In 2000, the International Olympic Committee came close to moving the games away from Athens for fear that its venues would not be ready. But thanks to a last-minute push by the Athens Organizing Committee, it finally appears that construction will finish on time.

"We are following the program every day, and without a doubt it will be ready on time. It has to be," says architect Santiago Calatrava, who is playing a major role among architects involved with the games.

Calatrava is engaged not only in renovating the Olympic Stadium and designing its spectacular roof, but in planning much of the Athens Olympic Sporting Complex. This includes a long, disparate list of projects for the architect: "Nations Plaza," a gathering space for up to 200,000; the complex's main promenade, traveling east-west through the heart of the Olympics; the "Nations' Wall," an 80-foot-high, 600-foot-wide movable entrance to the complex; the 5,000-seat Velodrome, used for bicycling, which is being modernized and roofed; and the "Agora," a large promenade arcade that will shade the pedestrian path that winds through the complex.

Most Olympic venues—many of which are updates of older buildings—will likely finish in May, thanks to almost nonstop construction, which, according to reports, has in some cases led to workers' deaths. The games will begin in August.

Calatrava's update of the Olympic Stadium should open on time, as he announced to the International Olympic Committee in December. The 75,000-seat stadium, originally built in 1979, first welcomed sporting events in 1982. Calatrava's $132.3 million overhaul highlights a cable design roof with twin steel arches whose gray-blue (like the ocean) glass panels shield spectators from the intense Hellenic sun. Other renovations include new seating, new suite spaces, handicap accessibility, and replacement air-conditioning, electronic, and hydraulic systems.

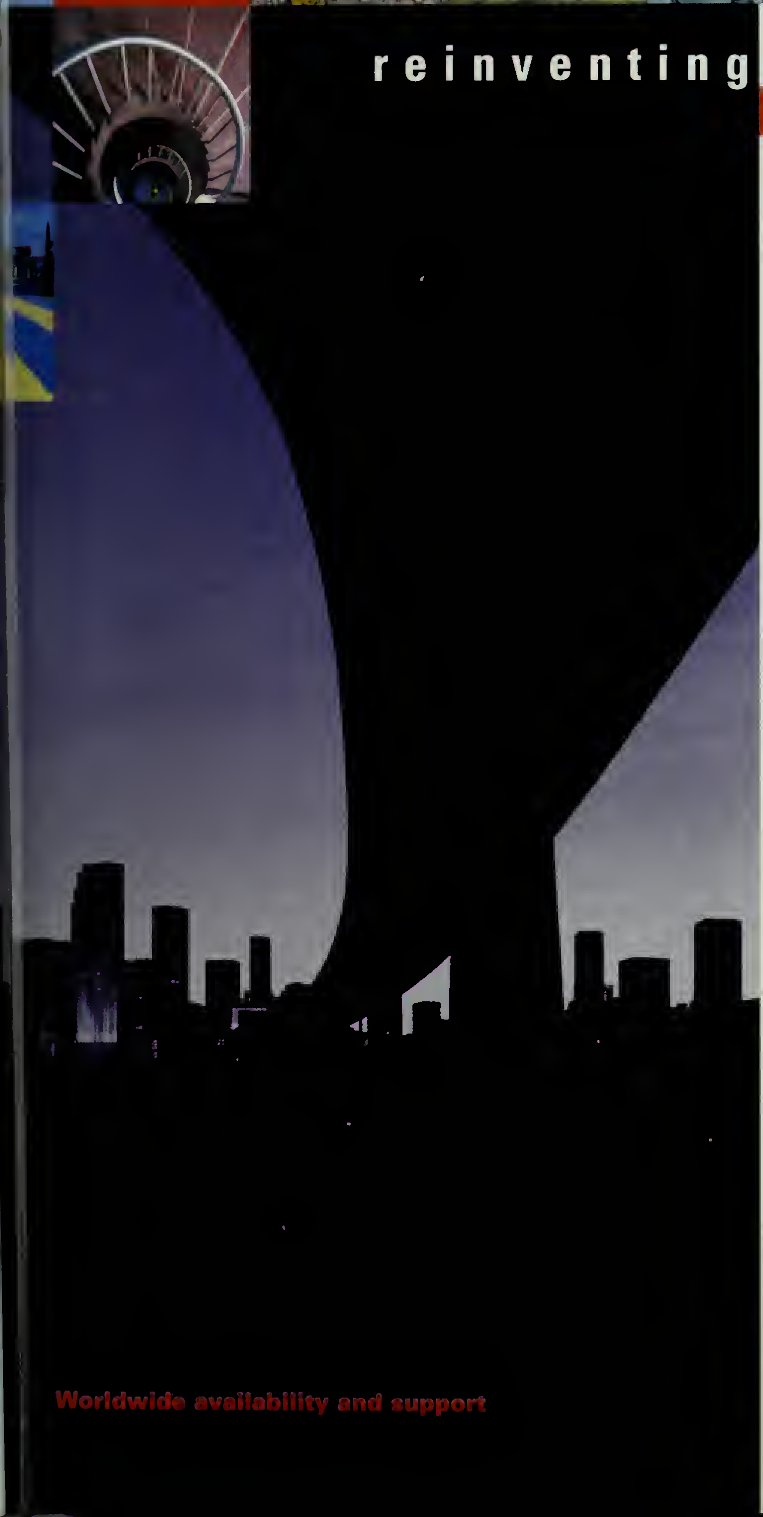
On opening day, more than 35 venues will include:

- The $16.3 million Olympic Water Sports Center in Oaka, which includes both indoor and outdoor swimming areas;
- The 14,000-seat, $19.9 million update of the "Peace and Friendship" stadium for handball, in Pireaus, a curved pancake of a building that will include new seating, new electronic systems, and event space improvements;
- An improved, 45,000-spectator "Panathinkaikon" stadium in the center of Athens intended for archery and the conclusion of the marathon;
- The Olympic Village, housing 16,000 athletes and team officials in 2,292 apartments and 8,814 rooms, which is more than 80 percent complete and will be finished by the end of February, according to the Greek Ministry of Culture.

Many venues will be built within a $95.6 million landscaped complex (master plan by Calatrava) that will include artificial lakes, waterfalls, cypresses, and olive trees.

One of the biggest expenses of the multibillion-dollar event will be security, beefed up significantly as a result of the uncertain political climate. According to the Athens Organizing Committee, the Greek government has secured a $803 million budget for security infrastructure and equipment, more th double the security budgets of the Salt Lake and Sydney games.

Because the venues will be finishing so close to the beginnin of the games, some worry that there will not be enough time to fine-tune and test them. But Calatrava asserts this is not the case: "We are all very conscious of this, and there will be plenty of time to check the systems," he says. *S.L.*



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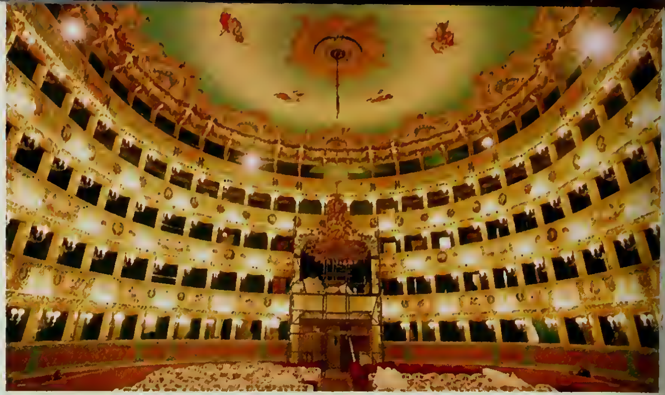


La Fenice (view of the main hall) reopened on December 14, after years of squabbling among politicians, contractors, critics, and architects.

Destroyed by fire, Venice's La Fenice opera house rises "as it was"

On December 14, 2003, as an uncommonly cold winter settled on the canals of Venice, historic La Fenice opera house—where five Verdi operas had their premieres—opened its doors for the first time since 1996, when an angry electrical contractor burned it nearly to the ground.

For one week, Italian celebrities and politicians attended star performances in the new hall as part of an acoustic test period before the finishing touches are put on the building this year. The official opening, scheduled for November 2004, will feature a performance of *La Traviata*, which debuted there in 1853.

From the moment the smoke cleared, Italian politicians declared that La Fenice would be rebuilt "*dov'era, com'era*,"—where it was, as it was.

The rebuilding of the theater has taken seven years and been marred by long delays, work stoppages, and the internecine intrigues of Italian politics.

Milan architect Gae Aulenti won the original design competition in May 1997. Under the auspices of Italian contractor Impregilo, work began on the reconstruction a month later. But within a year, a losing contractor in the initial bidding—Munich-based Philipp Holzmann—successfully argued that the commission had been unfairly awarded, and in the fall of 1998 the Italian government threw out Impregilo (and Aulenti's design) in favor of Holzmann, with a design prepared by Aldo Rossi, who had died the year before in a car accident.

Holzmann fared worse, completing only 5 percent of the work over the next three years before the firm was fired by Venice mayor Paolo Costa. A government-sponsored consortium was formed to finish the work, retaining the Rossi design, by 2004.

"We made very small changes," says Massimo Scheurer, a partner in Aldo Rossi's office in charge of the work since Rossi's death. The outward form of the theater and interior decoration are largely that of the original—which was built in 1792—as it was radically redesigned in 1837. "We had the original plans of the 1837 redesign, which was largely intact by 1996, as well as some very photographic documentation."

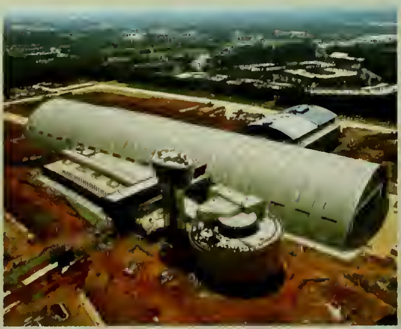
Scheurer says that Rossi approached the La Fenice project reverently, preferring to make only slight deviations from the original. The spatial organization of the new theater reflects modern realities: A subterranean set-storage and service room will allow La Fenice to stage modern, technologically challenging performances. In consultation with acoustic engineers from BBM Mueller, the interior decoration has also been modified to create four sets of movable panels that Rossi hoped would improve the supposedly near-perfect acoustics of the original.

From the start, Italian critics have decried the restoration of La Fenice as a missed opportunity to give Venice a bold new work of architecture. The charge has been led by Antonino Saggio, a professor at La Sapienza, Rome's architecture school, and his studen Marco Galofaro, whose 2001 book, *Riscatto Virtuale* (Virtual Redemption), details some of the nonrestorationist visions for La Fenice. "Architects need to have horizons," wrote Saggio in the online architecture journal *Arch'it*. "If we simply rebuild it 'as it was,' don't we lose the opportunity for regeneration?" *Paul Bennett*

Smithsonian opens addition to its Air and Space Museum

The Steven F. Ydvar-Hazy Center rises next to Washington, D.C.'s Dulles Airport like a new terminal, replete with a 20-story control tower. The Dulles Annex, as it's also called, adds 760,000 square feet of exhibition space to the Smithsonian's 161,000-square-foot 1976 National Air and Space Museum on the National Mall. At the mid-December dedication, the annex displayed 82 aircraft and 61 major space artifacts, numbers that will more than double by 2007.

Architecturally, the main attraction of the complex, designed by HOK's Washington, D.C., office, is the aviation hangar, 986 feet long and 10 stories high at its apex. Constructed with 21 arched steel trusses, the wide-open structure is modeled on vaulted dirigible hangars of the 1930s. Three walkway levels give visitors up-close views of such airplanes as the first Air France Concorde; the Lockheed SR-71 Blackbird, the fastest plane ever built; and the Enola Gay, which A-bombed Hiroshima in 1945. Airplanes, rockets, and gliders are arranged and hung from cables and risers, giving the impression of flight. A smaller spacecraft hangar features the Space Shuttle Enterprise, Gemini VII, and a variety of other space artifacts. The top of the observation tower provides views of runway activity at Dulles, while the first floor replicates an air controllers' working space. The center, built mainly with private funds, is named for the Hungarian refugee and aircraft leasing executive who contributed $65 million. The total cost was $311 million. ***Andrea Oppenheimer Dean***



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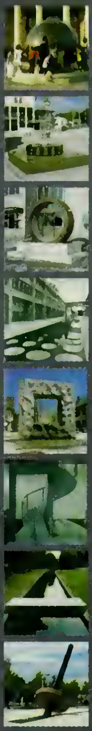

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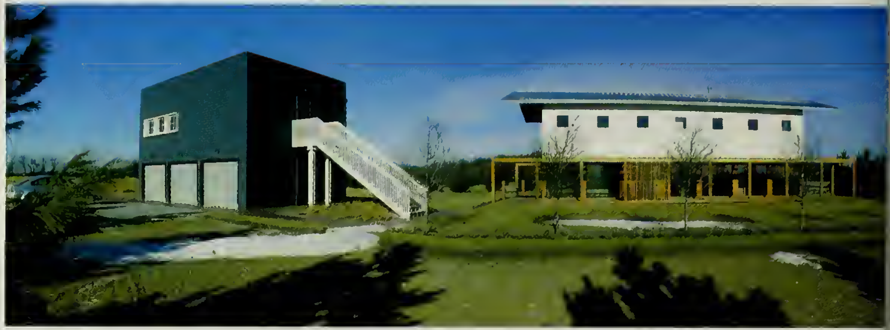

Minnesota development boldly focuses on Modernist design

Mayo Woodlands, a unique residential development featuring Modernist-style homes on a wooded bluff overlooking the Zumbro River Valley near Rochester, Minnesota, is now taking shape. One hundred twenty innovative homes will be built on the 220-acre site.

Five homes are slated for construction this year, while phase I (60 houses) is expected to be done by 2006, and the entire development is projected for completion by 2010.

Modernist houses at Mayo Woodlands (top and above) have drawn both critical raves and scorn .

The land once belonged to Dr. Charles Mayo, cofounder of the Mayo Clinic, who was known for his progressive thinking. The property now belongs to Mayo's six grandchildren.

Reflecting on the family's heritage of innovation in medicine and agriculture, the Mayo heirs brought in landscape architect Shane Coen of Coen + Partners, Minneapolis, to enhance a plan originally developed by local engineers. Coen has assembled a forward-thinking design team including David Salmela, of Salmela Architect, Duluth, Minnesota, and Tim Alt, of ALTUS Architecture, residential specialists, Minneapolis. "Our task was to make this more progressive and up-to-date," says Salmela.

Each house in the complex is purposely Modern and light-filled, with a Midwest farm character, yet sparked by original, emphatically Modern features like smooth lines, lack of adornment, and boxy shapes. Most appear to be sitting in a field of prairie grass with optimum views of the unspoiled fields, meadows, and forest. No house is wider than 24 feet, and although each will have a different design, they share a common vocabulary—wood and stucc for exteriors, with metal roofs. The first completed home has floor-to-ceiling windows on th main level and a midnight-purple, detached three-stall garage.

"There are no architectural precedents up there. We used the classical elements in the barns in these Modern designs," says Shane Coen. Tim Alt adds that the plan was to break away from trends in today's housing developments: "We wanted them to be distinct from the New Urbanists' more traditional designs," he say

The design team divided the plan into thre distinct neighborhoods: the Village, the largest parcel, on flat, formerly cultivated land suitable f ¾-acre lots; the Prairie, gently rolling land bordered by trees, designed for 2- to 4-acre lots; a the Forest, a smaller, heavily wooded area overlooking the valley, best for the largest lots. To erase lot lines in the Village, designers planted tall prairie grasses throughout and, for privacy, added 1,000 pines east to west like traditional farm windbreaks.

To date, reaction to Mayo Woodlands' innovative, even revolutionary design, is mixed. Traditionally, the area around Rochester in southeastern Minnesota is conservative, yet th constant influx of professionals from all over th world is seen as a plus. "They find it really interesting, others are critical. I find that when you raise the bar above the norm, the critics come out. Our challenge is to provide new solutions that are viewed as opportunities," says Coen. A three designers are hopeful that as people con tinue to visit the site, they will recognize that houses here are actually part of the landscape

Bette Hammel

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New regional architectural publications adding buzz to a buzzing field

At a recent panel discussion at the 92nd Street Y in New York City with members of the "New York Five," architect Richard Meier wondered how people were suddenly so interested in architecture. "We're not just talking to architects. We're talking to a public that is interested in architecture," he said, thronged by adoring fans as if he were the next incarnation of the Beatles.

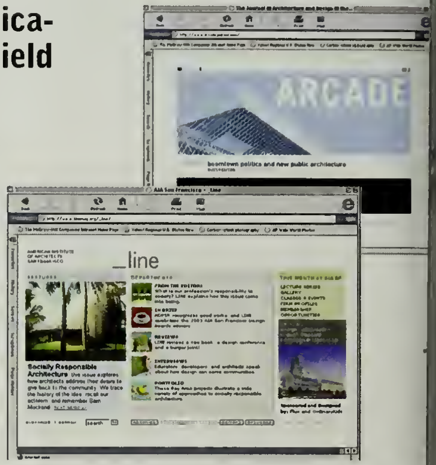
Indeed, thanks to architectural events like the rebuilding of the World Trade Center, mind-warping structures by Frank Gehry and Zaha Hadid and others, and a building boom affecting virtually every city, architecture seems to be soaking up increased attention nationwide.

Reflecting this growth—and to keep up with all the news—there has been an upsurge in print and digital publications, often honing in on traditionally underserved regional communities.

"There's this pent-up desire to communicate about this subject. I think the general population has a lot of input," says Cathy Lang Ho, editor of *The Architects Newspaper* (www.archpaper.com), a tabloid that started in November and officially launched as a biweekly in January. The newspaper concentrates on the tristate New York region and covers new projects along with breaking news from the field, and also has lists of events as well as reviews and classifieds.

"Other industries all have their own news sources, but strangely, the architecture world doesn't have anything like this," says Ho.

Other regional publications include San Francisco's AIA chapter's *_line* (www.linemag.org), an online magazine with interviews, special reports, features, and listings; the New York AIA's *Oculus*, which returned in print and on the Web (www.aiany.org/eOCULUS/Current_Issue.html) in 2002; and the Pacific Northwest's online information resource *Arcade* (www.arcadejournal.com).



***_line* and *Arcade* on the Web (above), and regiona print magazines (below), help hype architecture.**

For many with limited budgets, an online presence has opened doors. "Going online gave us the ability to do much more with less—the ability to have full-color images and give regional work fuller coverage, and also the possibility of reaching new audiences," say the cofounders an chairs of *_line*, Yosh Asato, John Parman, and Kenneth Caldwell.

Other journals and magazines include *Next American City*, a thoughtful periodical dedicated to urban planning that started last spring. A recen issue examines how religion affects urban desig with articles about Christianity's effect on the environmental movement and how Hasidic Jews have stayed in primarily black Crown Heights, Brooklyn. Another is *Log*, a journal based in New York that explores architecture from an often theoretical view. The first issue includes discours from members of architecture's intelligentsia, suc as Bernard Tschumi and Cynthia Davidson (the publisher), and includes an article about the role of terrorists' architectural knowledge in the destruction of the World Trade Center. *S.L.*

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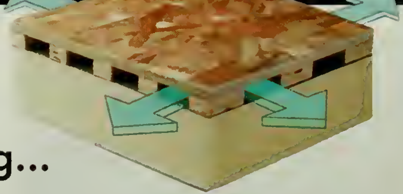

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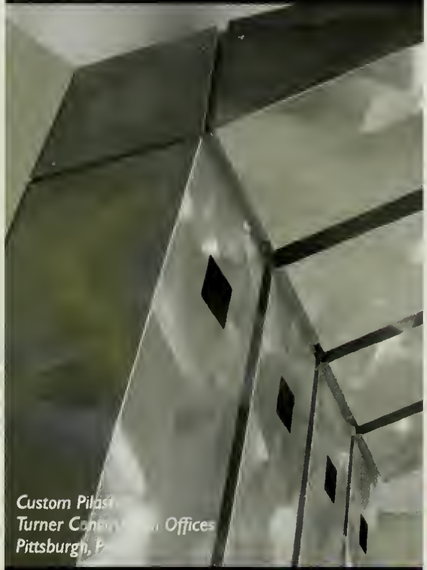

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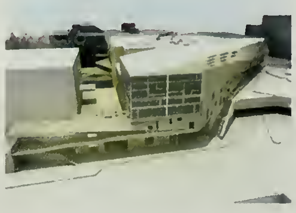
Preston Scott Cohen adding to Tel Aviv Museum of Art


The addition to Tel Aviv museum.

Boston-based architect Preston Scott Cohen has won a competition to design a new building at the Tel Aviv Museum of Art.

The program for the addition includes large, flexible gallery spaces, an auditorium, restaurant, library, storage, restoration labs, administrative areas, and an education wing.

Cohen describes the project as being about "overcoming odds": Fitting the desired rectangular galleries onto the "clamorous geometries" of the triangular site and building a 247,000-square-foot building on a 38,000-square-foot site, with a stipulation not to exceed the 38-foot height of the existing building.

The resulting building is largely underground and full of volumes that appear almost to be in motion. A vast, light-filled atrium at the center brings light into the deepest parts of the structure.

Clad in precast-concrete panels and finished to look like the stone that covers parts of the existing 1971 Brutalist museum, the addition will be linked by a connector surrounded by gardens. The City of Tel Aviv/Yafo has committed almost half of the $45 million budget for the project. *Elizabeth Kubany*

An artsy vision for the next phase of Mass MoCA.

Stage two under way at Mass MoCA

Cambridge, Massachusetts–based Bruner/Cott and Associates is working on phase two of the Massachusetts Museum of Contemporary Art, or MASS MoCA. The museum, in North Adams, is located in a 13-acre complex of 19th-century red-brick factories and warehouses that until 1985 housed the Sprague Electric Company. For phase one, completed in 1999, the firm renovated six of the site's 26 buildings. The expansion allocates 70,000 square feet for professional and commerci use and 120,000 square feet for exhibition space.

Bruner/Cott says it will continue to treat the factories as found objects, accentuating their industrial character. "We've let the existing conditions inform how we've designed and detailed th spaces," says partner in charge Simeon Bruner.

The new galleries, now in schematics, will progress as funding goals are met; the professional spaces, which will include law offices and courthouse, are scheduled to be completed by spring 2005. The cost estimate is $20 million. *Nancy Levinson*

Performing arts getting a boost in D.C.

The Shakespeare Theatre in Washington, D.C., has unveiled designs for its new Sidney Harman Theatre.

Designed by Diamond & Schmitt Architects of Toronto, the downtown hall will be a $77 million, 800-seat space that will accompany the Shakespeare's existing 451-seat Lansburgh Theatre. Together they will make up the new Harman Center for the Arts.

The building will occupy the first five-and-a-half floors of an 11-story office tower on 650 F Street NW.

Inside, the space is dramatically lit by a five-level glass curtain wall with a projected bay window, which the firm calls the "urban window," while the centerpiece is a glass stair and balustrade in the theater lobby.

"Some people find Shakespeare, music, and dance remote, myster ous, and intimidating," says Diamond & Schmitt principal Jack Diamond. "That is why the design emphasizes a welcoming transparency." *S.L.*

Harman's glass curtai wall will keep it light.

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lectures

RICK JOY ARCHITECTS PHOTO © JEFF GOLDBERG/ESTO

February 5
Green Homes by Design
Angela M. Dean, AIA,
Salt Lake City, Utah

February 18
Rick Joy
Principal of Rick Joy
Architects, Tucson, Arizona

February 19
American Synagogues
Samuel D. Gruber, professor of Judaic studies at Syracuse University

exhibitions

SYMPHONY IN STEEL © GIL GARCETTI

Symphony in Steel: Ironworkers and the Walt Disney Concert Hall
through August 22

D.C. Builds: The Anacostia Waterfront
through May 23

Masonry Variations
through April 4

Up, Down, Across: Elevators, Escalators and Moving Sidewalks
through April 18

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News Briefs

London's buildings and monuments "brightened up" for Christmas

Nine of London's most famous buildings were spectacularly illuminated as part of the city's Christmas festivities, with images selected or created by celebrities. The first ever "Brightening Up London" project, instigated by the Orange mobile phone network, launched on December 2, 2003, with Sir Bob Geldof's message of Peace and Hope beamed onto Wellington Arch at Hyde Park Corner, using the world-renowned Band Aid album cover and sunflower imagery to symbolize hope.

Fashion designer Stella McCartney's image of time passing transformed the Queen's House by architect Inigo Jones in Greenwich, while the concrete planes of Denys Lasdun's Brutalist National Theatre were graced by Christmas fairies and baubles courtesy of Kylie Minogue and photographer David Bailey, and later, on New Year's Eve, by Nelson Mandela's New Year message. At the National Gallery, supermodel Naomi Campbell's winter and feast scenes temporarily upstaged the art collection. The sequence culminated in the queen's choice for Buckingham Palace, a giant Union Jack lit up on Christmas Eve. But two images put forward for London landmarks, one by artist Peter Kennard, of the Virgin Mary with a globe for a face and a CND logo in place of a halo, and Jesus with shopping bags by graffiti artist Banksy, were not selected because of wide popular protest. *Lucy Bullivant*

London lit up with sunflowers.

Big names vying to develop L.A.'s Grand Avenue

The Los Angeles Grand Avenue Authority has named five star-studded teams in a competition to develop 8 acres in downtown Los Angeles. The estimated $1.2 billion mixed-use undertaking wi play a key role in revitalizing the city's urban cor The 3.2-million-square-foot mixed-use project calls for residential units, offices, shops, restaurants, and a 16-acre park.

The consortiums are Grand Avenue Development Alliance with Arquitectonica, Gary Edward Handel + Associates, MVE & Partners, and RTKL; Forest City Development, which will select an architect through a design competition; The Related Companies with David Childs, FAIA, of Skidmore, Owings & Merrill and Elkus/Manfredi; J.H. Snyder Company with The Jerd Partnership and Johnson Fain and Rios Associates; and Weintraub Financial Services with Gehry Partners.

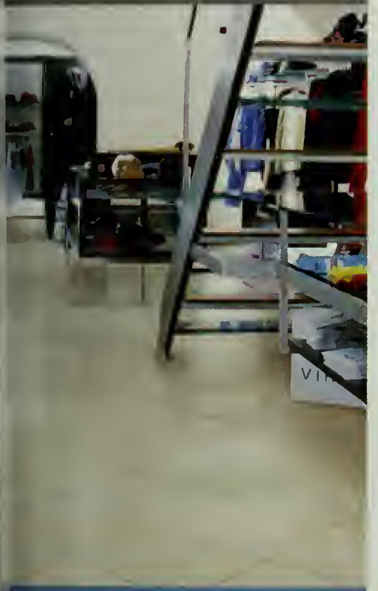
The teams must submit detailed proposals for the site within two months. The Authorit will then select a winner who must produce a cor prehensive plan by September 2005. *Tony Illia*

Wimbledon's Centre Court will finally be rainproof.

Centre Court at Wimbledon to get retractable roof

Centre Court at Wimbledon, the jewel in the crown of the All England tennis club, is to have new, lightweight, retractable roof, designed by HOK International. This will enable all-weather play during the championships and is part of an innovative scheme to maintain Wimbledon as o of the world's most recognizable and evocative sports arenas. The capacity of Centre Court will be increased from 13,800 to 15,000 spectators by the addition of new seating and brand-new catering facilities. The plans announced are the latest in a range of developments, including the new No. 1 Court, Broadcast Centre, Aorangi Picnic Terrace, and improved facilities for player media, and officials.

The roof will provide a consistent and safe playing environment in both open and closed positions. Composed of a 55,972-square-foot folding fabric concertina, the ro can be compressed into a very small area when not in use, while being translucent enough to provide an open feel when the it closed over the court. Designed to close in under 10 minutes, it allows natural light to reach the grass. Positioned at 52.5 feet above the playing surface, the roof provide good clearance for high lobs. *Lucy Bulliva*



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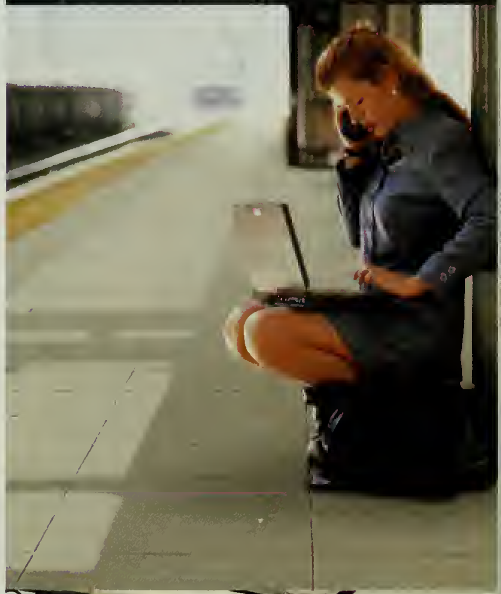

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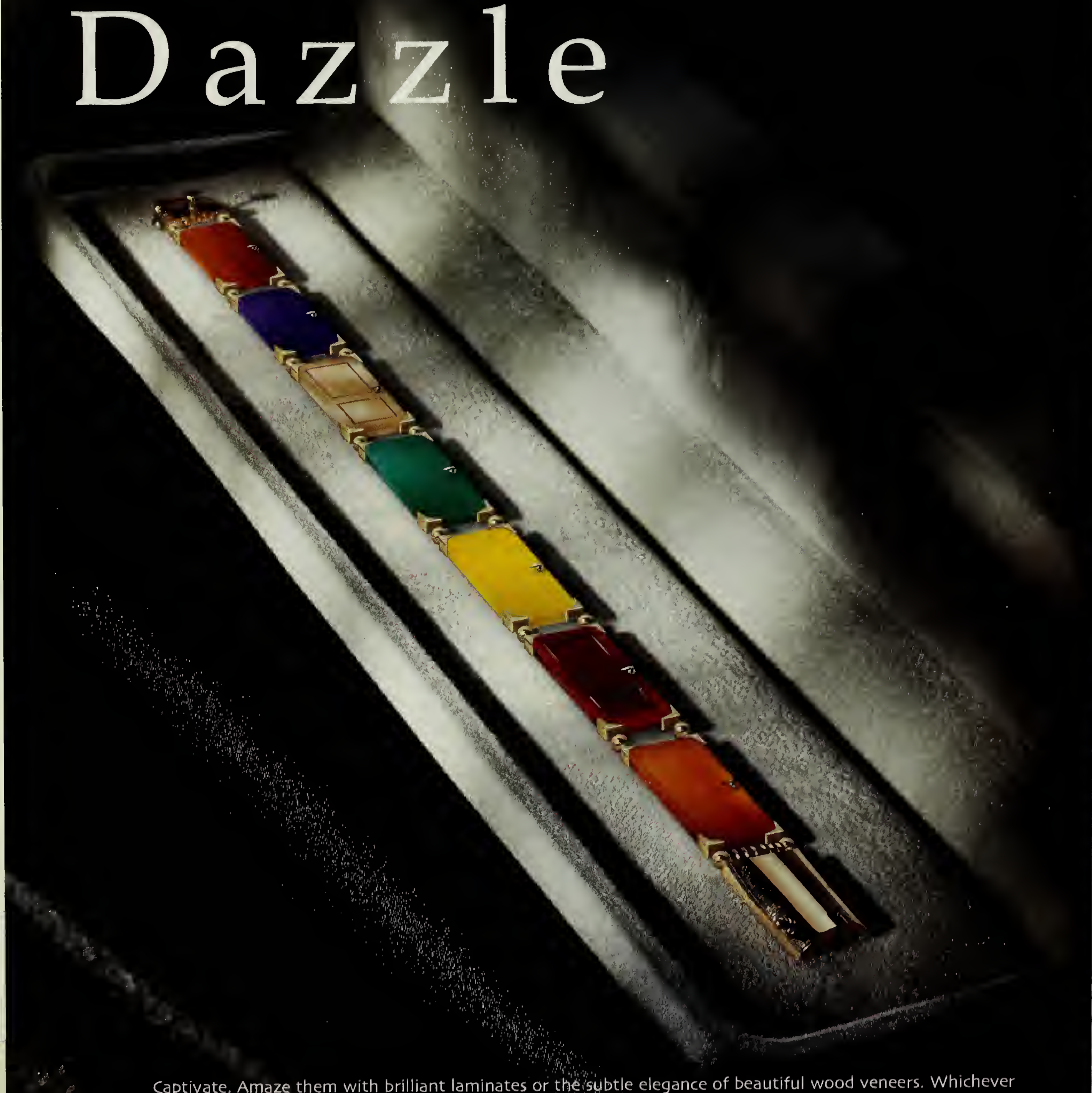

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lew & Upcoming xhibitions

he Maine Perspective:
rchitectural Drawings,
800–1870
ortland, Maine
ebruary 7–May 22, 2004
ne first of a three-part series that ill examine the history of Maine chitecture, this exhibition encom- asses drawings made between 300 and 1870. The 50 drawings view range from the naive graphics early local amateurs and builders the sophisticated midcentury pro- ctions of trained designers from as away as Boston, New York, and ashington, D.C. At the Portland useum of Art. Call 207/775-6148 or it www.portlandmuseumofart.org.

uls I. Kahn: Built and
nbuilt Projects
ew York City
bruary 12–28, 2004
is exhibition will feature project awings and sketches by world- nowned architect Louis I. Kahn. companying the drawings will be otographic prints by the famed chitectural photographer Roberto hezen, whose images of Kahn's ildings illustrate Joseph Rykwert's portant monograph on the archi- t's work. At the Max Protetch llery. Call 212/691-4342 or visit w.maxprotetch.com.

fordable Housing:
signing an American Asset
ishington, D.C.
bruary 28–August 8, 2004
s exhibition demonstrates t low-cost housing need not be ow quality and explores the entially far-reaching benefits good design for residents and ir broader communities. At National Building Museum. l 202/272-2448 or visit w.nbm.org.

Bisazza: Italian Mosaic Design
Brooklyn, New York
March 1–May 31, 2004
More than a dozen pieces of art and furnishings by such design luminaries as architects Alessandro Mendini and Michael Graves, fashion designer Romeo Gigli, and painters Mimmo Rotella and Anna Gili will make their way from Italy to Brooklyn for the exhibition. At Urban Glass. Call 718/625-3685 or visit www.urbanglass.org.

Jorn Utzon: The Architect's Universe
Humlebaek, Denmark
April 2–August 29, 2004
This exhibition will illustrate Utzon's working method—the process—focusing on his work and his sources of inspiration. Utzon, best known for his design of the Sydney Opera House, was awarded the 2003 Pritzker Architecture Prize. At Louisiana. Call 45/4919-0719 or visit www.louisiana.dk.

Ongoing Exhibitions

Hopping Fences: Influences in Modern Living
Philadelphia
January 16–May 2, 2004
This project showcases five interdisciplinary design/build firms from the Philadelphia area. The multilayered exhibition is conceived as an alternative to traditional furniture or design shows by acting as a conceptual reflection on how design impacts on and is influeced by modern urban living. Call 215/545-0767 or visit www.philartalliance.org.

Timeless Experience: An Architectural Journey through Itria, Italy
Washington, D.C.
January 16–April 2, 2004
An evocative series of brown-toned black-and-white photographs by Rajesh Nair depicting the atmospheric buildings and landscapes of Italy's Itria Valley will be presented at the American Institute of Architects Headquarters Gallery. Call 202/626-7369 or visit www.theoctagon.org.

Mori on Wright
Buffalo, N.Y.
Through March 14, 2004
The architectural competition to choose a design for an interpretive center for the Frank Lloyd Wright Martin House is the subject of this extended installation. At the Albright Knox Gallery. Call 716/882-8700 or visit www.albrightknox.org.

Lectures, Conferences, Symposia

David Hertz: The Ecology of Architecture
Los Angeles
February 11, 2004
David Hertz, AIA, is the founder of Syndesis, a San Francisco–based firm involved in the design and construction of residential and commercial buildings, product design, furniture design, and public sculpture, as well as material development. The lecture will be held in the Gin D. Wong, FAIA Conference Center, Harris Hall, at the University of Southern California. Call 213/740-2092 or visit www.usc.edu.

Streets and Walkable Communities
Washington, D.C.
February 11, 2004
Dan Burden, executive director of Walkable Communities, is a nationally recognized authority on streets that work for people whether on foot, bike, or in a motor vehicle. Burden will explain his consensus-owned asset, the public streets, and illustrate how successful streets support smart growth. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Men of Steel
Washington, D.C.
February 12, 2004
The Karl Koch Erecting Company was responsible for the construction of a number of historic structures, including the World Trade Center. Karl W. Koch III, co-owner of the company, will discuss the firm's history and tell the story of the creation of the WTC. He will also discuss his recommendation for establishing a national commission to oversee the designs of America's important buildings. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Rick Joy
Washington, D.C.
February 18, 2004
Tucson-based architect Rick Joy approaches his projects with the goal of making spaces that highlight the visitor's sensory experiences. His architecture specifically responds to the rugged Arizona landscape. Joy, who is principal of Rick Joy Architects, will discuss his body of work, which, through its simplicity and sensitivity, is very appropriate to the vast natural landscape it occupies. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Sustainable Design and Energy-Efficient Building Techniques for Existing Housing
Washington, D.C.
February 19, 2004
William Asdal, president of Asdal and Company Builders, is a nationally recognized builder active in the remodeling industry. In a number of case studies, he will illustrate the

Dates & Events

remodeling process and discuss several schemes for evaluating design options. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

American Synagogues
Washington, D.C.
February 19, 2004
Samuel D. Gruber, professor of Judaic studies at Syracuse University, will discuss the nature and history of synagogues from biblical times through European and contemporary American forms. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Technology & Tradition in Japanese Contemporary Architecture
New York City
February 26–28, 2004
Sponsored by Japan Society, ARCHITECTURAL RECORD, and the Architectural League, this symposium features prominent contemporary Japanese and Western architects, architecture critics, curators, scholars, and engineers. Call 212/752-3015, e-mail gsnible@japansociety.org, or go to www.japansociety.org.

Captains of Industry: Daniel Libeskind
New York City
March 4, 2004
This talk features Daniel Libeskind, architect of the former World Trade Center site, with *BusinessWeek* editor in chief Stephen B. Shepard. At the 92nd Street Y. Call 212/415-5500 or visit www.92Y.org.

Interiors '04: The ASID Conference on Design
Savannah
March 4–7, 2004
The American Society of Interior Designers Conference on Design is open to all designers of the built environment. At the Savannah International Trade and Convention Center. Visit www.asid.org.

Aesthetics and Architectural Composition: The Dresden International Symposium of Architecture
Dresden, Germany
June 16–19, 2004
Deadline for submission of abstracts: February 1, 2004
The theme of the symposium addresses architects, urban designers, and planners, as well as scientists, artists, philosophers, and theoreticians. Call 49 0 351/4633-4473 or visit www.tu-dresden.de.

2004 Kitchen and Bath Industry Show and Conference
Chicago
April 1–4, 2004
This is traditionally the largest annual event of its kind, offering the latest in cutting-edge design, creative application of product lines, and new products. At Chicago's McCormick Place. Call 800/933-8735 or visit www.kbis.com for further information.

AEC Systems: Technology for Design & Construction
Orlando
February 17–19, 2004
Addressing all facets of the architectural design, engineering, and construction industries, this technology marketplace will showcase a multitrack educational conference, networking events, and exhibitions of cutting-edge trends. At the Orange County Convention Center. Call 800/451-1196 or visit www.AECSYSTEMS.com.

Competitions

Vietnam Veterans Memorial Education Center
Deadline: February 20, 2004
The Vietnam Veterans Memorial Fund seeks design teams interested in being considered for the design of an underground educational center on the National Mall in Washington, D.C.

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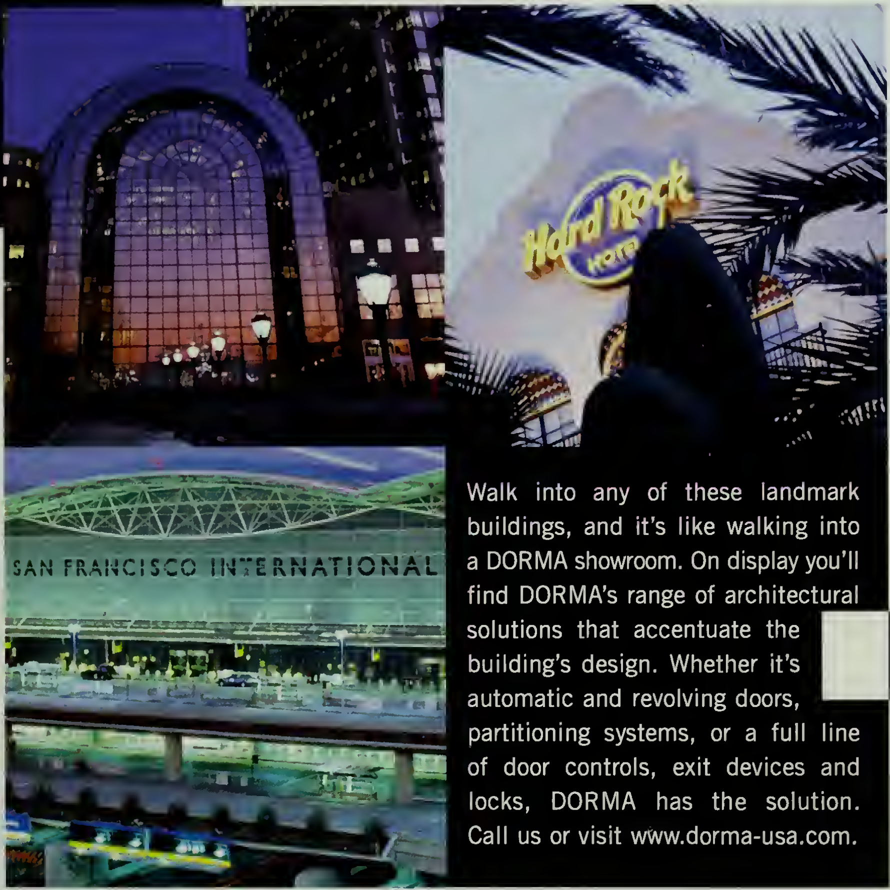

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For requirements and entry information, visit www.vvmf.org.

Broadway Square Design Competition
Fargo, North Dakota
Deadline: March 15, 2004
The purpose of this competition is the development of a design for Broadway Square that will enhance the space and be compatible with the Broadway streetscape and surrounding features. Call 701/241-1474 or visitwww.cityoffargo.com/broadwaysquare.

2004 AIA St. Louis Photography Competition
Deadline: March 15, 2004
Open to architects registered in the U.S., associate members of AIA, and student members of AIAS. Images must include a feature of the man-made environment. Call 314-621-3484 or visit www.aia-stlouis.org.

2004 Business Week/Architectural Record Awards Program
Deadline to order submission package: March 19, 2004
Deadline: April 16, 2004
These awards honor architectural solutions that help clients achieve business goals through measurable results and distinguished collaboration between architect and client. For more information, call 202/626-7524 or e-mail bwarawards@aia.org.

2004 AIA San Francisco Design Awards
Deadline: February 12, 2004
Each category—Green Design, Unbuilt Design, Urban Design, Special Achievement and Excellence in Design (Architecture and Interiors)—recognizes innovation and excellence as well as the breadth of work currently being undertaken in the profession. Open to small, medium, and large firms of architecture, interiors, and urban design in the Bay Area, projects must have been completed since January 1, 2000. Visit www.aiasf.org/awards.

2004 Spectrum Awards: Coverings
Alexandria, Virginia
Deadline: February 27, 2004
The competition is open to architects and other design professionals whose projects demonstrate creativity and achievement in the use of tile in residential and commercial design. Projects must have been completed within the past two years (January 2002–December 2003). Call 703/683-8500 or visit www.coverings.com.

The Frederick P. Rose Architectural Fellowship
Deadline: March 29, 2004
The Fellowship funds visionary partnerships between nonprofit organizations and new architects with the goal of making improvements in struggling communities nationwide. Visit www.enterprisefoundation.org/RoseFellowship/.

International Ideas Competition 2004: Shrinking Cities—Reinventing the City Berlin
Deadline: April 15, 2004
The objective is to identify innovative approaches capable of qualifying the urban transformations associated with the phenomenon of shrinkage and to develop new ideas about the city based on the specific qualities of shrinkage itself. The territories of the competition comprise four urban regions: Detroit, Halle/Leipzig, Ivanovo, and Liverpool/Manchester, each of whic has already served as a case study. Visit www.shrinkingcities.com.

E-mail events and competitions information two months ahead of event or submission deadline to ingrid_whitehead@ mcgraw-hill.com

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Design Awards Winner: International Village, Vancouver, BC • Kir Kor Archi

Metal Construction Association

American Iron and Steel Institute

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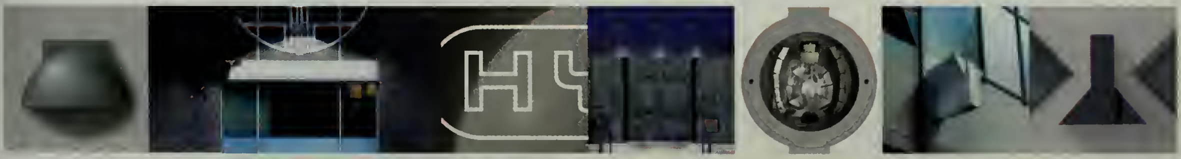

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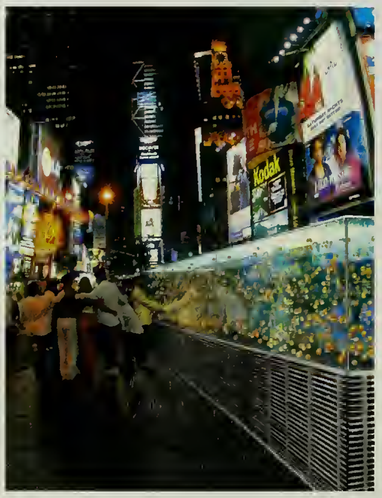
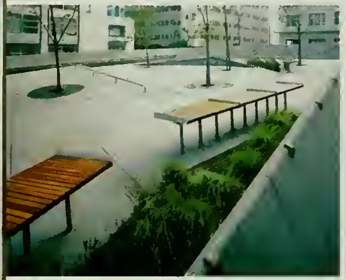
archrecord2

FOR THE EMERGING ARCHITECT

This month's ar2 examines two traditional relationships in architecture—architect-client and teacher-student—turned upside down. Design architecture firm Della Valle + Bernheimer Design challenges the former by taking on parents as clients. Work architect Linda Samuels reinvents the latter with a lesson in friendship. The moral of both stories is that relationships in architecture don't have to be traditional to work.

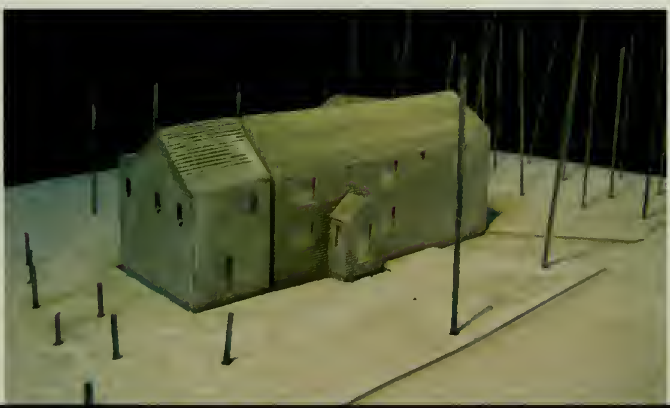
Creative Time Art Hub/Information Center, Times Square, New York City, 2003
Competition entry for Creative Time, a New York–based nonprofit organization that commissions and presents public arts projects.





Plaza Renovation at Phillip Burton Federal Office Building, San Francisco, 2000
Competition winner that addressed local issues of habitability, wind control, light, and security.

Residential Addition (under construction), Newton, Mass.
This zinc-clad addition is an extrusion of an existing Colonial. Construction is due to be completed in 2004.



DESIGN

Della Valle + Bernheimer Design

When your very first client is the United States government, it's safe to say you can handle just about any client after that—or is it? What happens when your new clients are your very own parents—every architect's dream or worst nightmare? Andrew Bernheimer (right) and Jared Della Valle (left) of the Brooklyn-based firm Della Valle + Bernheimer Design were about to find out.

The two met while studying architecture at Washington University in St. Louis and quickly formed an unexpected partnership when, barely out of school they won an international competition to design a new Federal Plaza in San Francisco. "We call it the shotgun wedding," Della Valle recalls. "We had to start business, so we did, and fortunately we've been able to work together quite well."

For the past several years, following completion of the plaza, the firm has found steady work on much smaller, interior projects, including a series of hig end loft renovations in New York City and Boston. And, like most young firms, they relied on word of mouth to find clients—sometimes friends of friends, rel tives, even. Most recently, it was Bernheimer's own parents who approached them to build an extension to the family home in suburban Massachusetts.

Not your typical empty-nesters, the Bernheimers weren't looking to down size. With four children and even more grandchildren, they needed extra space to accommodate the growing brood during their visits back home—and having an architect in the family made the decision to expand much easier. "Had I not been in the family, I don't know if they would have added to the house," Andy muses. "And they certainly would not have added this," he notes with a laugh.

The addition, though conventional in its layout, features a very unconventional choice of materials. "At first we proposed some ideas that were pretty radical," Andy explains. "But we kept thinking about the idea of shingling." The addition, which houses new sleeping quarters and additional wall space for the clients' art collection, is essentially an extrusion of the existing two-story Colonial shape. The architects' decision to use a zinc-coated copper cladding, however, mimics the scale of the existing siding but gives the house an entirel new aesthetic. "It's basically a roofing material," Della Valle elaborates. "But instead of stopping at the eaves, we wrapped it around the sides." There is a

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small reveal between the addition and the existing structure to articulate new from old.

"You always try to persuade your clients to do something interesting," Andy says. "This time, it involved having to convince my own parents. My mother, in particular, is a creature of habit, and I don't think she wanted too much change. It was a balancing act between creating something new and effectively replicating their living patterns."

Though Bernheimer is obviously uncomfortable talking about his parents, Della Valle doesn't hesitate to acknowledge the wonderful working experience they shared. "Andy's parents are dream clients in many ways. They have a wonderful sense about art and what looks good." According to Bernheimer, "When we first suggested the zinc cladding, we were actually surprised that they liked it."

This project also marks a milestone for the firm as their first occupiable building. And while it's now under construction, Della Valle + Bernheimer are at work on several other new buildings, including residences in Texas and on New York's Fire Island. They're also back to working for the government, this time in collaboration with New York City's Department of Housing Preservation and Development, designing much-needed affordable new housing in some of the city's poorest neighborhoods. *Josephine Minutillo*

Go to *architecturalrecord.com/archrecord2* for more Della Valle + Bernheimer information, and to submit your own projects.

Public Swimming Facility, Aalborg, Denmark, 2001
This international competition entry presented the major space the pool facility as a sheer sheet water covering an undulating ground plane, the pool bottom.

P.S. 18 Elementary School Library Renovation, Staten Island, N.Y., 2000–2001
Part of the Robin Hood Foundation's Library Initiative, this building employs a clean, Modern sensibility.

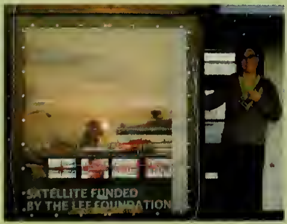
WORK

Rolling with the Mobile Studio

Teaching is undeniably a rewarding experience. But it can be a very frustrating one, as well. What, then, would possess a professor and five of her students to spend eight weeks together traveling cross-country?

"You have to be passionate about the topic," explains Linda Samuels (photo, right), a professor of architecture at the University of North Carolina at Charlotte, who conceived of, and organized, the Mobile Studio, a mobile curriculum of studio, seminar, and photography that hit the road during the spring semester of 2002.

Samuels and fourth-year students David Fish, Jedidiah Gant, Becky Joye, and Bill Sinkovic, and graduate student Couch Payne, traveled just under 9,000 miles during the course of their pedagogic experiment. Having already established a series of short-term collaborations with schools across the country, Samuels led her group from Charlotte and headed south, hooking up with students of the Rural Studio, Rice University, and Arizona State University, then up to Las Vegas for a short stay at UNLV and a trip to Los Angeles and another partnership with Woodbury University.



Samuels has always been interested in the subject of mobility. "As an undergraduate, I did a studio project on tourist housing, and I've always had this sort of tangential interest in postcards and souvenirs—the idea of collecting data." She went on to do her graduate thesis at Princeton on the New Jersey Turnpike. Samuels had a couple of goals for the trip. First, to get where she wanted to go and back. Not so simple when you've got six people crammed in an S.U.V. for hours on end—and even less so when you've got an enormous, custom-built trailer—the "satellite," as it was called—hitched to the back. The other goal was to get past preconceived ideas about the road. "There are two big preconceptions about the road, neither of which is true," Samuels explains. "The first is a very romanticized notion that's been built up in literature and on film. The other is the idea of the road, or more specifically highways, as being this destructive force that's led to the devastation of so many American cities."

"I think we achieved our goals, and others we developed along the way," Samuels admits. The success of the studio is also evident in the students' heightened interest in issues of mobility. Most developed their own thesis projects on topics as diverse as homelessness, multimodal transportation, and information technology and transportation. "Definitely!" is Samuels reply when asked if she's up for another eight weeks on the road—and as for her and her former students, "We still speak!" *Josephine Minutillo*

For more on the Mobile Studio, go to architecturalrecord.com/archrecord2

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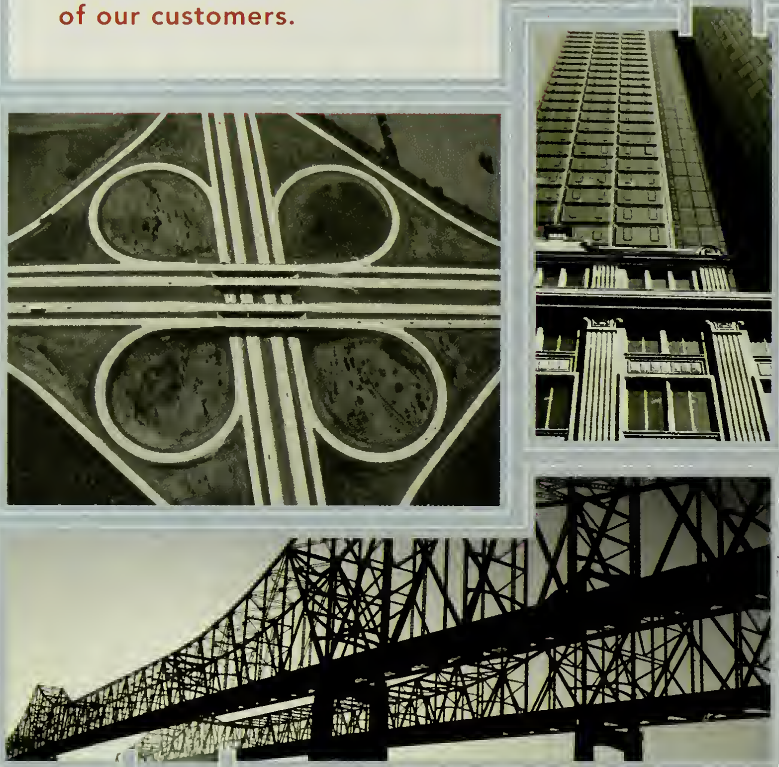

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Down at the WTC: Dissident thoughts amid the fanfare and boosterism

Commentary

By Paula Deitz

begin with, the current World de Center site proposals are npered by too much politics and little vision. In addition, an ealistic timetable and competi- ns skewed by preordained itations have severely curtailed ativity. But with a steady diet of sterism from the daily press ing the past month (since the eiling of the Freedom Tower the announcement of the win- of the Memorial Competition), ndered if I were alone in these nions. I therefore sought out ne of New York City's best- wn public intellectuals and c-minded professionals to see they viewed the ongoing elopments downtown. The ults were stimulating, if disturb- *The New Yorker* writer Adam nik finds that the master plan the World Trade Center site— uding the proposals for the edom Tower and the *Reflecting ence* memorial design—repre- ts a failure of both imagination leadership. "Right after the ster, I had said, 'I hope they 't put up a group of office ers surrounding a cemetery,' " nik comments. "But that is ctly what is happening—with ning to elegize emotions in an rly way."

Landscape architect Diana nori, who assisted in writing specifications for the memorial proposals, shares some of Gopnik's reservations, particularly with regard to the Memorial Competition. "I was disappointed with what appeared to be no better than student work that seriously needed a good 'crit,' " she said. Also, she felt the submissions strayed from the fundamental idea of ground-level public space. "In general, there was too much building without quality architecture," she elaborated, "and a roof over an underground space means it can be closed off and therefore no longer public."

Furthermore, Balmori adds about the pools on the memorial site, "What does water have to do with 9/11 or the footprints themselves?" She notes that the National Park Service, which will be charged with maintaining the memorial, is notoriously bad about keeping fountains running, even in Washington, D.C., across from the White House. Of course, her comments raise the additional question of why more landscape architects were not involved in this obvious proposal for design on the land. (Only one landscape architect, Michael Van Valkenburgh, was on the jury; and the winning competitor, Michael Arad, brought in landscape architect Peter Walker after his scheme was identified as a front-runner.)

Thomas Bender, a cultural historian who teaches at New York University, states the case more broadly: "We have gone too far with a missed opportunity," he asserts. In regarding the rebuilding as a restoration project, Bender believes no true thought has been given

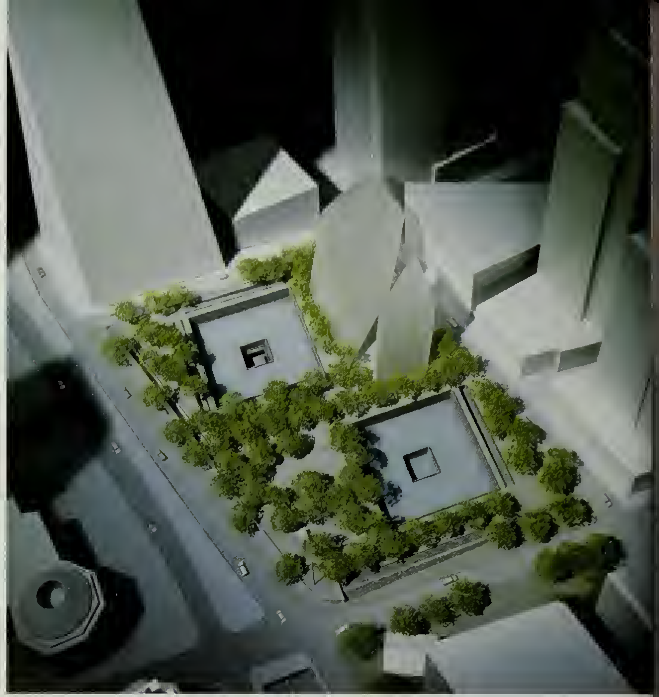
Freedom Tower unveiled in December: (left to right) Governor George Pataki, Daniel Libeskind, Mayor Mike Bloomberg, Larry Silverstein, and David Childs.

to reconstructing downtown New York in truly urbanistic terms. He regards this as a failure not only to recognize transformations in the economy, but also to assess new forms of activity in adjoining neighborhoods. Why the rush for a new tower, he wonders? With the financial district dissolving per se, there is no market for office space. And, Bender argues, the memorial lacks the kind of distinction that should give it international dimension.

For future solutions, Bender looks to Paris, where establishing residential centers that attract artists and intellectuals is part of the urban policy to resurrect neighborhoods. As a more realistic solution, he wonders why the Port Authority of New York and New Jersey doesn't simply buy back the lease to the WTC site from developer Larry A. Silverstein, since the income from it represents only 4 percent of its budget.

For models in other cities, New York could also look to Tokyo's recently completed Roppongi Hills, where developer Minoru Mori masterminded as part of his "Urban New Deal" a massive complex of high-rise commercial and residential buildings with a blend of multilevel street activity. Architect William Pedersen, whose firm, Kohn Pedersen Fox Architects, designed its centerpiece, the 54-story Mori Tower, topped by a museum designed by Gluckman Mayner

la Deitz is the editor of Hudson Review *and writes uently on architecture, design, art for* The New York Times.



Reflecting Absence **memorial by Michael Arad and Peter Walker, with Freedom Tower (top) and fragments from Libeskind's master plan (right).**

[RECORD, January 2004, page 106], believes the success of this project is not necessarily the architecture, but the programmatic vision and the dynamic interaction of all its parts. "While Daniel Libeskind presented a forceful master plan for the World Trade Center site," Pedersen says, "his hierarchy of parts with a thematic basis has not been sustained in the emphasis on the aesthetics of individual pieces."

Bruce Fowle of Fox & Fowle Architects agrees. As one of the founders of the coalition New York New Visions, which now advises the Lower Manhattan Development Corporation (LMDC) and the Port Authority, Fowle chairs the committee reviewing the guidelines Libeskind is preparing for the agency. "My first reaction to the Freedom Tower [designed by David Childs of Skidmore, Owings & Merrill with Libeskind as a collaborating architect through conceptual and schematic stages] was that it was a powerful and viable design," he says. "But in reality, it's too strong for the rest of the Libeskind master plan. Libeskind's plan called for a harmonious, spiraling crescendo of towers that was delicate and meaningful." Also, Fowle argues, this harmony will be further destroyed, since the other towers by different architects will probably not be completed for another 20 years.

"LIBESKIND'S HIERARCHY OF PARTS WITH A THEMATIC BASIS HAS NOT BEEN SUSTAINED," SAYS WILLIAM PEDERSEN.

Fowle fears the impact on the street of such a massive tower with its spire of wind turbines. It exceeds the FAR for the area (the city's zoning restriction–owned land), as did the original overgrown Twin Towers and their windswept plaza. Also, since the turbines have never been tested technologically, their environmental impact is uncertain. A further consideration for Fowle is whether a green approach to all the buildings should not be an essential part of the guidelines at this time. What does he consider to be positive? The Port Authority's selection of Spanish-born engineer and architect Santiago Calatrava to design the World Trade Center transportation hub (page 22).

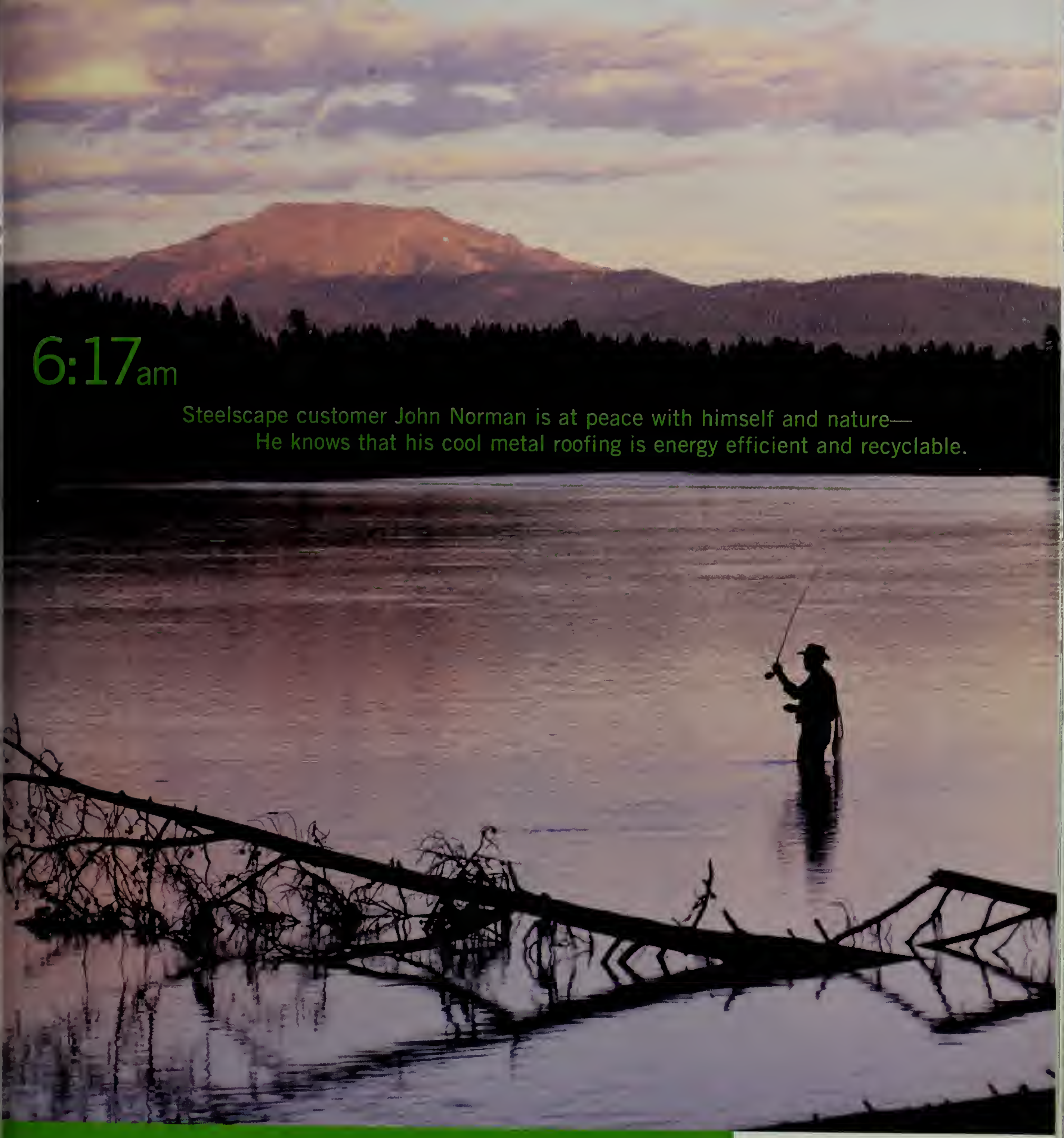
As president of the Regional Plan Association, Robert D. Yaro agrees with Bruce Fowle about Calatrava and believes "the winged glass and steel structure is a brilliant, uplifting concept." Certainly, Calatrava's soaring transportation terminals and bridges have transformed cities all over Europe. Yaro considers it doubtful whether direct rail access to airports from this terminal can be achieved, since the Second Avenue subway would take precedence by the sheer number of people who would profit from it. In general, he has a more positive outlook about the current proposals. Nevertheless, Yaro fears that the plan could end up as a hash of commercial real estate, a whole less than the sum of its parts, and devoid of the symbolic architecture he greatly admired in Libeskind's Jewish Museum in Berlin.

Everyone questions the ill-defined role of cultural institutions on the site, especially Mike Wallace, the founder of City University's Gotham Center for New York History and author of *A New Deal for New York* (2002). Wallace is generally against office space, and thinks a greensward with a shard from the Twin Towers would be an appropriate memorial for the next 10 years. Although the steel-mesh fence around the site now attracts thousands of visitors a day, how long into the future will this continue? Wallace favors placing a New York History Center at Ground Zero that would combine both the New-York Historical Society and the Museum of the City of New York in an effort to create a history museum that would attract international visitors to experience the cultural and historical life of the city through 9/11 and beyond.

A second proposal Wallace puts forth is for an International House of Culture offering residencies to artists, writers, musicians, dramatists, and filmmakers, with particular attention to artists from countries and cultures in conflict. He visualizes this center as an adjunct to a multipurpose performing arts center already planned by the LMDC.

Such a performing arts center, which at present has been given too little consideration, would, according to my own view, be suitable even as a memorial in the great American tradition of memorial buildings honoring the war dead of their cities. These buildings traditionally doubled as great civic auditoriums and performance theaters attracting national and international audiences to their programs. The WTC site would be the best place for a New York Memorial Hall with a grand entrance directly on West Street. Inside, the names could be inscribed on legible bands along public corridors and lobbies, not isolated underground, but in the mainstream of shared cultural experiences and community life. With cultural institutions like the New York City Opera and the Joyce Theater clamoring to come downtown, and with other cities ahead of us in building new conce halls housed in stunning architecture, New York appears to have fallen behind in its response. We should not forget how the war-torn cities of Europe exemplified the spirit of survival and renewal by building new institutions and neighborhoods.

Adam Gopnik cites other historic moments of urban recovery. In the 17th century, to fulfill a vow following the plague, the Venetians built the great Church of S. Maria della Salute at the entrance to the Grand Canal. In 1710, the completion of St. Paul's Cathedral symbolized the City of London's recovery from the Great Fire of 1666. A secular society, he believes can produce its own equivalents to realize the full potential of what a building can do through "architectural energies that restate a city's belief in itself." All those who love New York should take heed. ■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Where does inspiration come from, and why do architects often deny its source?

Critique

By Robert Campbell, FAIA

u can't visit Richard Meier's Getty
nter in Los Angeles without think-
of Hadrian's Villa, the palace
ilt near Tivoli, a few miles east of
me, by the great Roman emperor
about the year 120.

Everything about the Getty
ninds you of the villa. You can't
k at the plan of one without think-
of the other. In both, grids collide
angles, often with round elements
knuckles where two grids meet.
ere are similarities in the water
tures and in the way white
ents seem to gather the sun
l bring it down to earth—accents
t are mythological statues at
drian's Villa and abstract architec-
al elements at the Getty.

curves and axes

Banister Fletcher's description of
drian's Villa, in his *A History of
hitecture*, first published in 1896,
ld equally describe the Getty:

"It is still possible to experi-
e ... the skillful way in which
drian and his architect have
trived the meetings of the
s, the surprises that await the
ning of a corner, and the vistas
t open to view. It was possible
e to experiment with new forms
new types of spatial composi-
... The most characteristic
ure is a constant play upon
ves and countercurves in place
of the rectilinear shapes used in most earlier planning."

A few weeks before the Getty Center opened, I lunched with Richard Meier on one of its terraces. Architects, like other artists, can be deceptive about their sources. I decided I'd play a game with Meier. I would talk a circle all around Hadrian's Villa, but I would never mention it. Would he volunteer it as a source?

I'd once been architect in residence at the American Academy in Rome, where Meier is on the board of directors. So at our Getty lunch, I talked about the Academy. I'd visited the stonecutters' yard in Bagni di Tivoli, only a few kilometers from Hadrian's Villa, where I saw the giant "guillotines" that split the travertine for the Getty, so I talked about that. I brought up the Villa d'Este and its gardens in Tivoli. And so on.

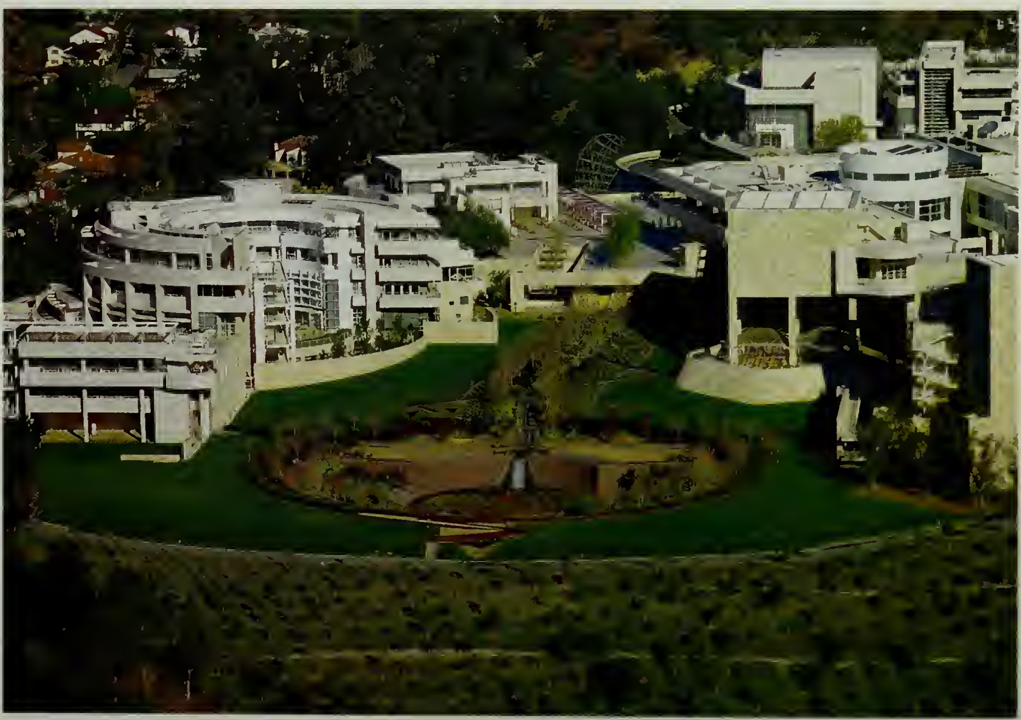
Meier mentioned other sources: Francesco Borromini, his favorite architect; South German Baroque churches; Sir John Soane. But he never mentioned Hadrian's Villa.

See, Absorb, Forget, Create

A few weeks later, I was again at the Getty. On that visit I spoke with Harold Williams, the Getty's director. I asked him whether, during the process of design, the subject of Hadrian's Villa had ever come up.

Williams stared at me as if I were crazy. "Richard took us to Hadrian's Villa," he said. "We spent a whole day at Hadrian's Villa."

That's the mystery of the creative process. Scholars of the imagination write about four stages of creativity: To See, to Absorb, to Forget, and to Create. The creative person must forget his sources, lest he feel he is merely imitating them. They must become an integral part of him before he can use them. Yale professor Harold Bloom puts the thought another way. Talking of writers, he says the creative person unconsciously



At the Getty Center in Los Angeles, Meier played a Neoclassical game of connecting axes with curves.

*tributing editor Robert Campbell,
A, is the Pulitzer Prize–winning
itecture critic of* The Boston
*be and was a fellow in the
ional Arts Journalism program at
umbia University in 2003.*

Were the curves and water features of Hadrian's Villa, circa 120 A.D., the inspiration for Meier's Getty?

misinterprets and distorts his sources, with a sort of Oedipal combativeness, in order to develop an independent voice of his own.

I might have believed Richard Meier had forgotten Hadrian's Villa—if Harold Williams hadn't told me about the visit there. But maybe by the time we talked, Meier had half submerged his awareness of his primary source.

Creative denial

The truth is that any creative person is a sponge in denial. Frank Lloyd Wright sopped up architectural influences from the Arts and Crafts Movement and from Tuscany, Secessionist Vienna, and Bauhaus Cubism, not to mention Japan and Tibet. Yet he wrote, in *A Testament* in 1957, "No practice by any European architect to this day has influenced mine in the least." The poet T.S. Eliot was more candid. He wrote: "The bad poet borrows. The good poet steals."

There was one other memorable moment in my lunch with Meier. The Getty at that time consisted of five separate related organizations, the art museum being only the most public of them. Most were still in the process of formation during the time of design. Meier thus had the difficult—or maybe impossible—task of designing buildings for clients who hadn't yet quite figured out who they were and what was their program.

I asked him if things might not have turned out better if he'd done an overall master plan and then allowed the different parts of the complex to be designed by other architects, one by one over time, as each subcenter came into clear focus. Each architect would then have a defined program to work from, and each architect (except the first) would have a context to relate to.

Meier paused a moment, then said, "If I hadn't got the commission I might have said the same thing." I was the only time he seemed to drop his guard.

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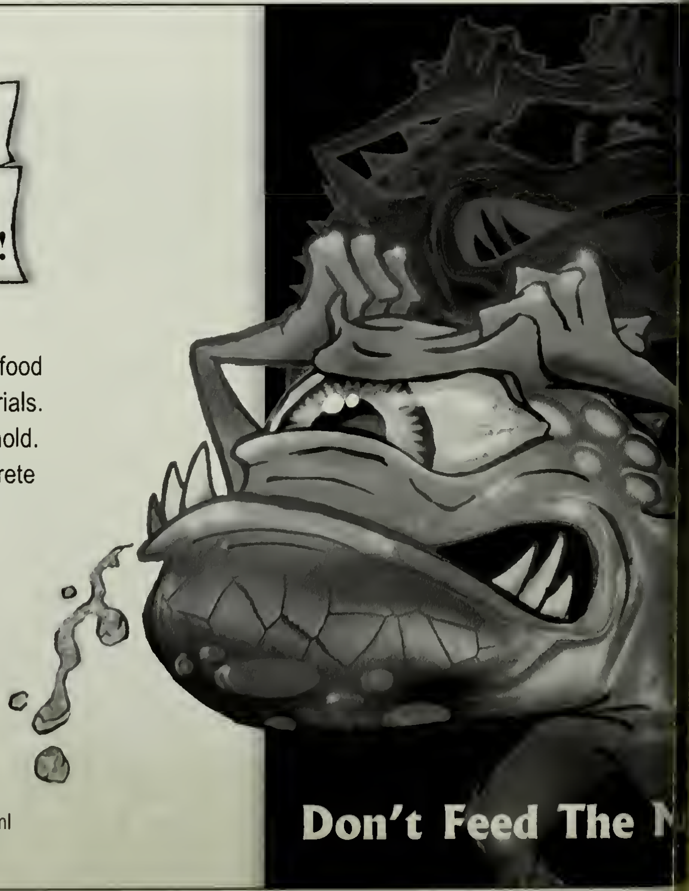

ashed up at 62

ing back for a moment to Wright: e just been reading Lewis umford for another project, and it's eresting to note that around 1930 eryone but Mumford believed ight, then 62, was washed up. ilip Johnson wrote to Mumford in 31: "Wright was a great pioneer, t he is a romantic and has nothing do with architecture today." But mford stuck to his belief that ight was the greatest living archi- t. Gratefully, Wright called him ber Llewis," doubling the *L* to nor Mumford with a Welsh name his own. No one knew then that lingwater (note the *F LL W* in that ne, too) and Johnson Wax were t over the horizon.

What's amazing is that the nsonian kind of bias against ght still exists. A couple of years , Jerzy Soltan, an acolyte of Le busier who for decades taught hitecture at Harvard, said to me: espise Frank Lloyd Wright." tan, a very nice man, virtually sed the verb. European elitists like Soltan (born a Polish aristocrat) tend to view America in one of two ways. Sometimes they fall in love, in a patronizing manner, with its gamy frontier image—think of poets W.H. Auden and Christopher Isherwood and their fascination with gangsters and Los Angeles beaches, or of Reyner Banham, who dressed like a ranch boss and doted on grain elevators, or of French intellectuals and their infatuation with the films of Jerry Lewis. At other times they view us, as does Soltan, and as did the young Europhile Johnson, with the snob disdain of an older culture.

THE CREATIVE PERSON MUST FORGET HIS SOURCES LEST HE MERELY IMITATE THEM. THEY MUST BECOME AN INTEGRAL PART OF HIM BEFORE HE CAN USE THEM.

A visit to the Glass House

I'll end with another anecdote of Philip Johnson. Back in the middle 1970s, Johnson and his partner were working on a huge office project for Boston, eventually built as International Place. I'd been architecture critic of *The Boston Globe* for only a couple of years and was the smallest possible dot on the great man's horizon. But when I called his office in New York, Johnson, master of marketing that he is, came to the phone himself and invited me to visit him at his famous Glass House in Connecticut.

Talk about sources. As others have noted, Johnson's estate is modeled, in part, on Sir John Soane's house in London. Johnson explodes Soane's house across the landscape. Soane's glassy front room becomes the Glass House; both dwellings feature an art gallery with paintings on hinged panels; both include a cryptlike underground sculpture gallery; and Soane's breakfast parlor, with its suspended vault, becomes Johnson's guesthouse. One wealthy architect-collector interprets another with wit and skill. But Johnson remains too conscious of his sources, I think, to be as truly creative as, say, Wright.

Johnson toured me through all this on an afternoon in late winter. There were no leaves on the trees and no clouds in the sky. The sun was low and bright. After the tour, we sat in the Glass House, with a single flower on the glass table, sipping two perfect martinis. The sun was invisible behind the brick cylinder that contains the bathroom and fireplace. But slowly, like a stalker, the sun was edging out of hiding. Suddenly it smashed our faces with the kind of appalling glare that can only be generated by the collision of a winter New England sun and a glass house.

"There's that bleeping thing again," said Johnson. And he rose and led us, and our martinis, to a shadier part of the room. ■

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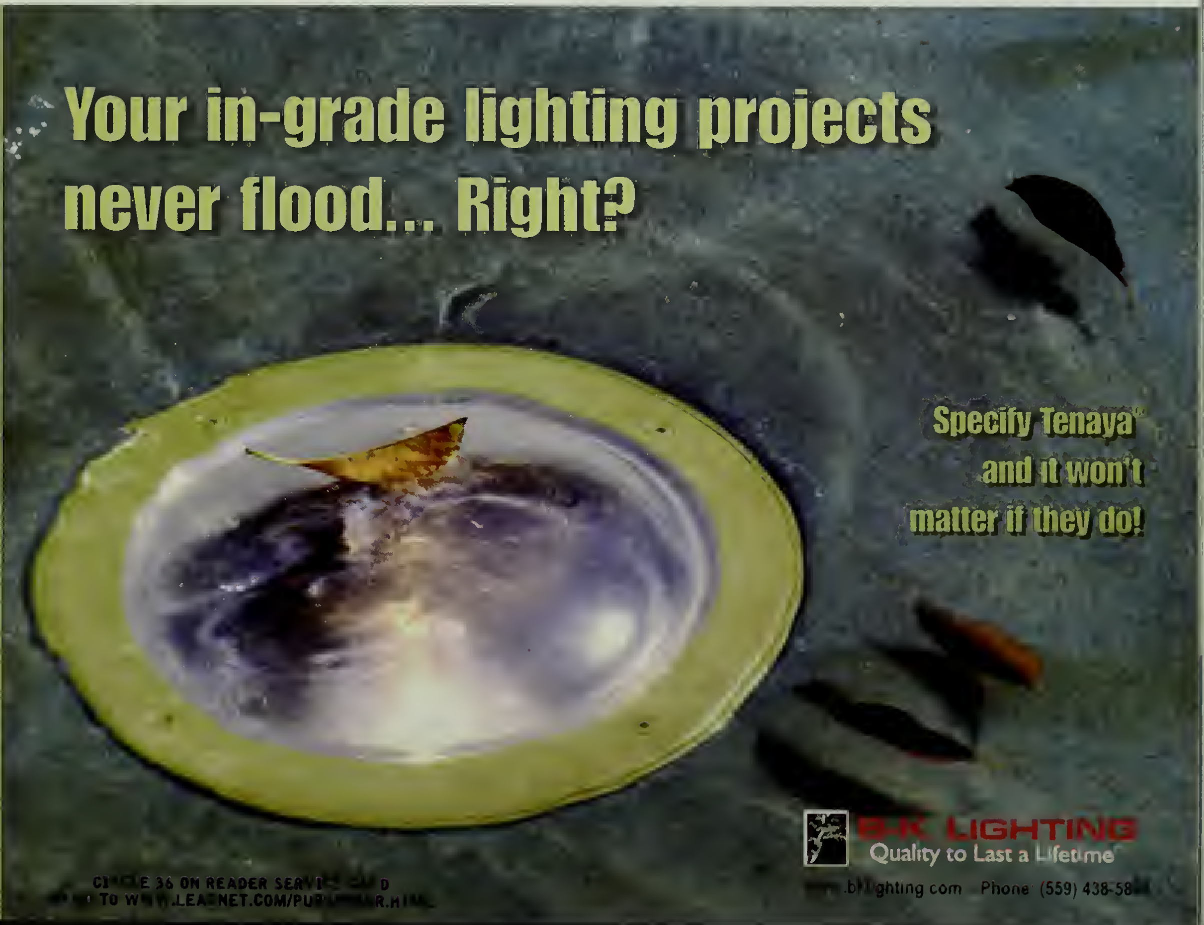
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Connecting the dots between the big city, the highway, and the wilderness trail

Books

obal City Blues, *by Daniel*
lomon. Washington, D.C.: Island
ess, 2003, 240 pages, $24.

niel Solomon's new book reads as
kind of sermon in support of New
banism. While it's easy to criticize
movement, one must admire its
ked evangelism: "Modern archi-
ture, and its ideology about city
nning," he writes, "should by now
as thoroughly discredited by 50
amitous years of city building as
y of the ideas in history." In this
ies of linked essays, he rails
ainst the global city and its "soul-
mbing environments of business
ks, freeway commuting, and
lled residential enclaves."

Many of his arguments against
postwar city are familiar: We
re led astray by our love of the
omobile, our contempt for
past, and, of course, a handful
oad men. The Modernists, in
omon's view, are not merely
r architects, but villains. After
Corbusier wrecked our cities, he went on to "seduce" generations of students. Solomon condemns Rem Koolhaas as a kind of evil genius who gets "kinky thrills" from "foul air" and "nihilist chic."

The author believes "there is no denying the seductiveness of the spatial complexities, the technological materials, the inventiveness, and the dazzle of the best Modern buildings." But he accuses Modernists of ignoring basic human needs (why are our office desks, for instance, 75 feet from a window that doesn't open?) and ignoring the importance of history (the city is bigger, older, more important, and deeply loved than anything the individual architect can conceive on his own). What Solomon most deeply wants from architects is not simply good design, but a moral pledge to improve the quality of life for all citizens. Architects, he says, are the "foot soldiers in the remaking of the world."

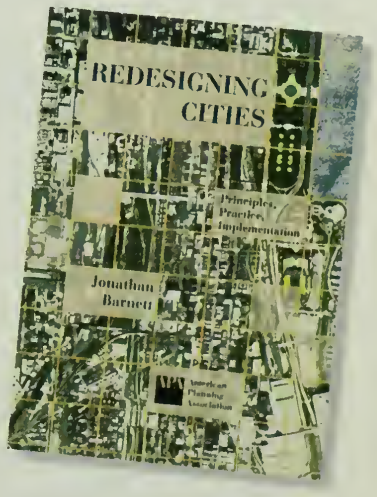
Most of us would agree that Solomon might need to recruit more than architects if he hopes to cure the world of its "tasteless food … porn shops … global warming … and half-ironic manipulations of media culture." Still, even if he does not present all the solutions to these problems, there is something refreshing about his insistence that intelligent design is a good first step. *Will Yandik*

Redesigning Cities: Principles, Practice, Implementation, *by Jonathan Barnett. Washington, D.C.: Planners Press/American Planning Association, 2003, 312 pages, $46.*

Few would dispute Jonathan Barnett's significant contributions to the field of planning. He helped define the relationships between the buildings we design and the sprawling regions we inhabit and has persistently advocated the need for enlightened government intervention in creating an orderly and attractive urbanism. Almost 30 years after the publication of his book *Urban Design as Public Policy*, his ideas have become part and parcel of the New Urbanists' credo, though Barnett would probably be the first to admit that he has learned as much from the New Urbanists as they from him.

In his previous books, Barnett deftly discerned the causes behind the countless decisions that define the modern city, for better or worse, and he again displays his talent for a seamless prose that distills and makes sense of complex forces. The question, however, is whether Barnett has come up with any ideas that aren't already on the agenda of most prominent planning and urban design firms, government entities, grass-roots advocacy groups, and even trade unions, which, along with the New Urbanists, are rallying under the banner of Smart Growth.

Much of the content of *Redesigning Cities* is common currency in the Smart Growth movement. To remedy ailing shopping malls, Barnett recommends increasing densities and inserting mixed uses. To alleviate traffic-clogged freeways and keep regional growth in check, he supports clustering densities at mass-transit stops. In place of sprawling suburban tracts of single-family houses, he suggests mixing housing types and income levels, as in Montgomery County, Maryland, where local statutes place an affordable-housing quota on developers. For aging downtowns, he advocates the creation of major destinations, not unlike Cleveland, with its two new stadiums, Rock and Roll Hall of Fame, and revitalized theater district.



Granted, Barnett has a flair for providing focus, making sense of seemingly contradictory issues, and suggesting actions that can move the Smart Growth agenda forward. But effectively working toward the same goal are the Sierra Club, the National Board of Realtors, the 1000 Friends of Oregon, www.planetizen.org, and others. In the final analysis, there is too much about this book that preaches to the choir. Too much is a resuscitation from Barnett's two earlier books or from writings by his peers. *Martin Zimmerman*

Benton MacKaye: Conservationist, Planner, and Creator of the Appalachian Trail, *by Larry Anderson. Baltimore: Johns Hopkins University Press, 2002, Maryland. 452 pages, $45.*

Benton Mackaye, known for his role as power broker of the Appalachian Trail—the hiker's East Coast mecca—was a planner and naturalist who came to fame in the era of Clarence Stein, Lewis Mumford, Gifford Pinchot, and other planning and environmental forerunners. MacKaye's slogan, "Speak softly but carry a big map," said much of the man and more of the times. In a lifetime (1879–1975) that spanned the era of wilderness—from definer Teddy Roosevelt and New Deal–builder Franklin Roosevelt, from the emergence of the car culture to the environmental movement—he hewed to his singular mission. The quiet, largely impoverished naturalist's work outlined a common path for the natural and the man-made world and made a profound mark on the American mind-set.

Drawn to the town of Shirley, Massachusetts, yet wintering in New York City in his youth, MacKaye described himself as an "amphibian between urban and rural life." And yet, however you choose to identify the soft-peddling prophet detailed in Larry Anderson's narrative, the fascination of this "conservationist, planner, and creator of the Appalachian Trail" lies less in his "between"-ness than in his very contemporary fusion of urban and wild or rural values so lacking in today's schizophrenic and traumatic treatment of the landscape.

Benton MacKaye
Conservationist, Planner, and Creator of the Appalachian Trail
Larry Anderson

If MacKaye had a peripatetic childhood and was slow to come to his chosen—or rather created—mission, he was by age 15 already inspired by "geography, forestry, regional planning, and geotechnics." A half-dozen years later, his travels from Shirley to Harvard College had given him his enduring sense of cities as cities ("noisy streets, heaving crowds, and egotistical policemen"); wilderness as wilderness; and suburbs as a "deplorable 'half-way'" condition. Hence was born his mission to connect the "highwayless towns and wilderness way" that would become the Appalachian Trail, along with his other governmental forays and leadership in creating the Wilderness Society and 1964 Wilderness Act.

Anderson's book, though perhaps more detailed than the average reader would prefer, provides fascinating glimpses of MacKaye's modus operandi, as well as the rich period and its cast of planners and politicians. Whatever MacKaye's exact trade—sometime forester, sometime writer, sometime trail propagandist—his aspirations read like a coda for regional planning: Using the "weapons of salvage," as he put it, he wanted to preserve a "balanced environment, townless highway, highwayless town, greenbelt, wilderness area, and regional city." Whatever today's distance from those dreams, at the least, the road he traveled and enabled us to travel should earn him a solid place in the creative canon. *Jane Holtz Kay*

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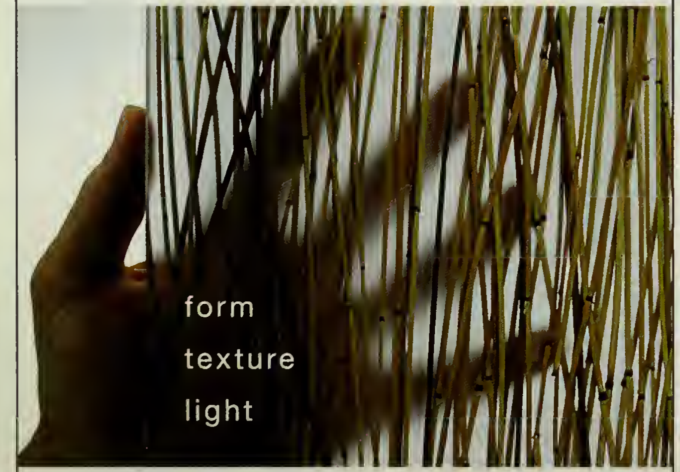

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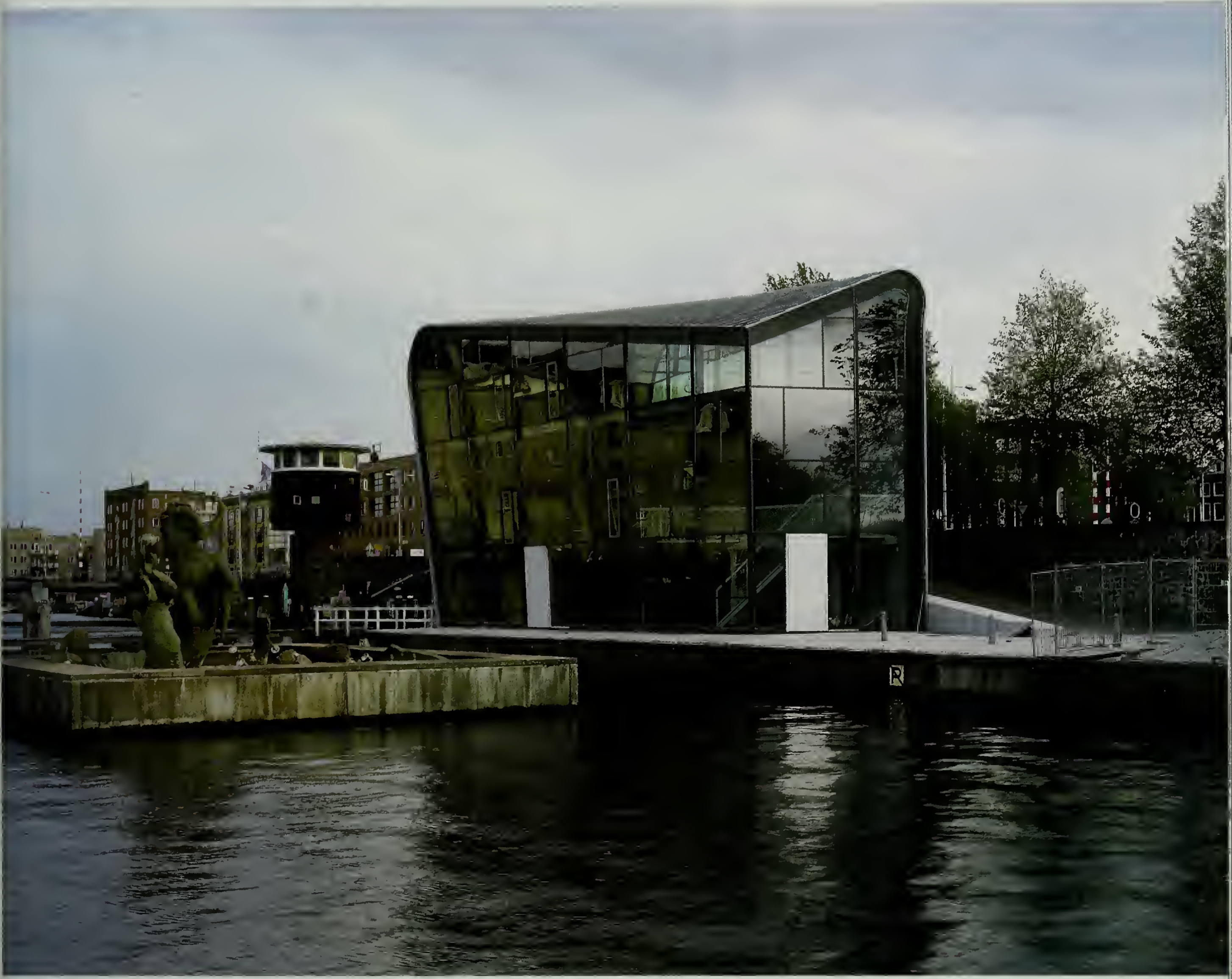
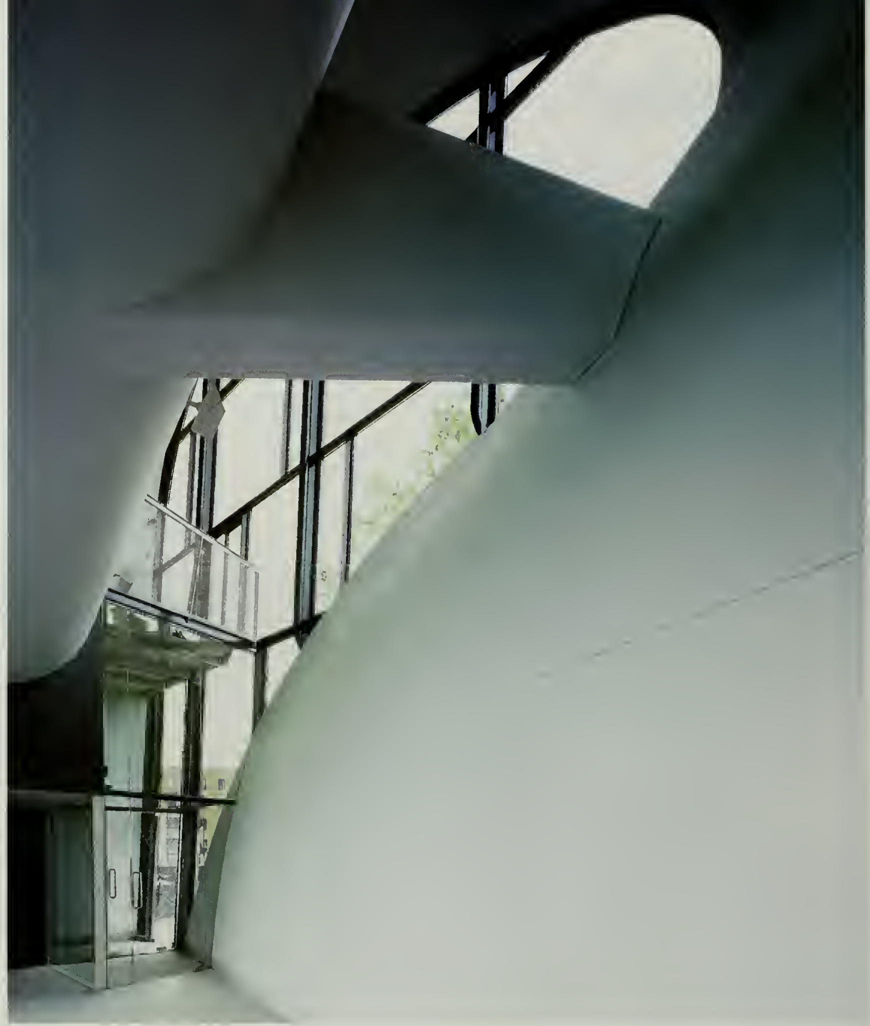


By Sarah Amelar

Ahead of the curve: ARCAM in Amsterdam

Simultaneously simple and complex, the new Amsterdam Center for Architecture (ARCAM) building appears both still and dynamic, its smooth, calm, continuous skin wrapping a subtly soaring and twisting hulk. "I was asked to create a single form—perhaps like a stone," says its architect, René van Zuuk [RECORD, December 2002, page 102]. But given his admitted penchant for "intelligent distortion," the results are anything but inert.

Befitting ARCAM—Amsterdam's prime venue for architectural exhibitions, research, and educational programs—the structure embodies its occupants' mission to engage public interest in local architecture. Van Zuuk, whose previous work includes a curvy landscape-art center in nearby Zeewolde, was selected from a shortlist to adapt an existing pavilion by Italian architect Renzo Piano into ARCAM's new home. Piano's 1,450-square-foot structure, perched near a quai's edge, had been erected only a few years earlier as the companion piece to his green, prowlike NeMo science museum just across the water—but the modestly scaled pavilion remained unused and



incomplete. When Van Zuuk proposed demolishing it (save for the ground-floor plate, foundations, and several columns) to accommodate ARCAM's 6,450–square-foot program, the Italian, by all accounts, responded with good-natured aplomb.

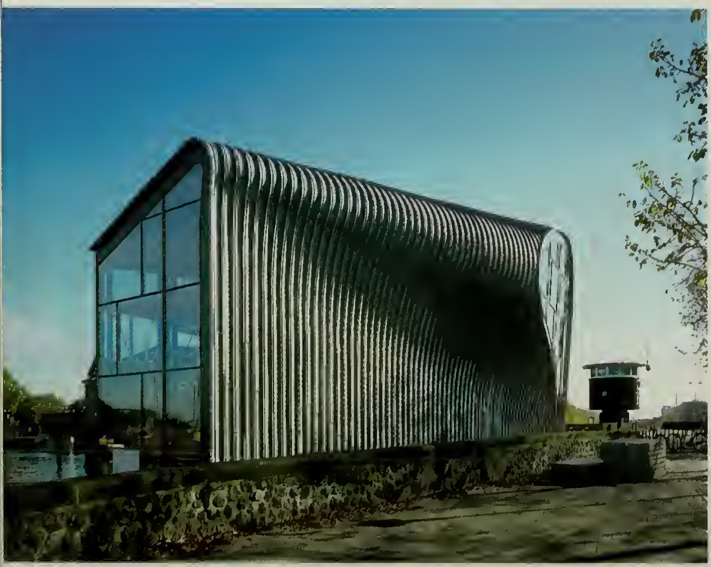
As built, Van Zuuk's sleek, steel-framed form suggests the forces of wind and water. With a dynamically deformed geometry based on two perpendicular cones, the building seems to hold potential energy just beneath its taut, zinc-covered aluminum skin. And even the skin's outer surface implies motion, with seams in the metal evoking the flow lines of a liquid.

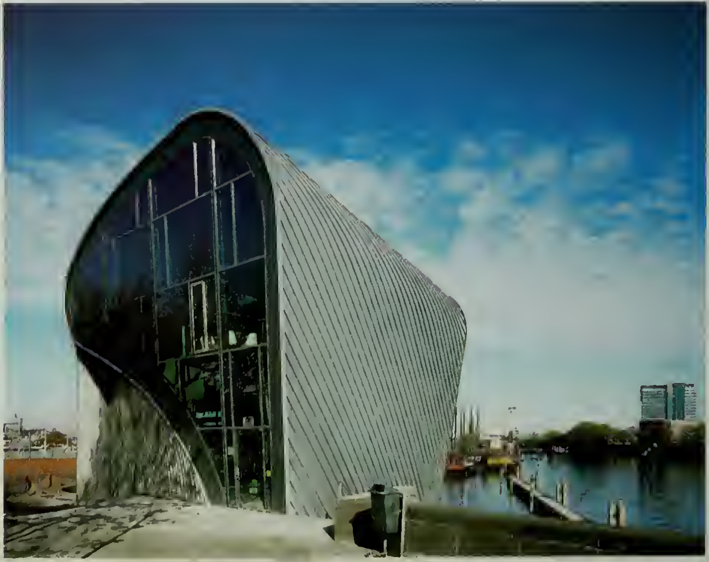
For the elevations facing the water, the architect held back the building's opaque, matte-gray sheath, opening the interior dramatically to light and views. Meanwhile, on the entry side, leading from the dense urban fabric around Amsterdam's central rail station, the building's curves give way to a flat plane of glass, revealing a literal architectural section—as if a knife had sliced open a huge loaf of bread, albeit a highly sculptural and expressively contoured one.

Having shared a single space at the center's previous location, the small ARCAM staff wanted its new quarters to maintain the original sense of unity and openness. Van Zuuk fulfilled this request while meeting the programmatic demands of gallery and office by minimizing interior partitions and creating balconies or mezzanines onto a three-story space. The building's glazed areas rise its full height, expanding the interior perceptually and merging ARCAM experientially with its subject matter: Amsterdam itself.

In a city where daringly shaped, idiosyncratic structures have become the norm—ranging from Meyer and Van Schooten's ING headquarters [RECORD, January 2003, page 92] to Frits von Dongen/Die Architekten Cie's *The Whale*—René van Zuuk's diminutive ARCAM building boldly holds its own. ■

The expressively folded skin (below, left and right) yields equally sculptural interior forms (above). The fenestration intensifies the experiential qualities.





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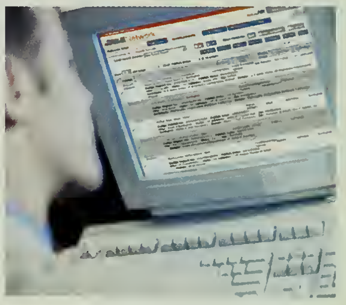

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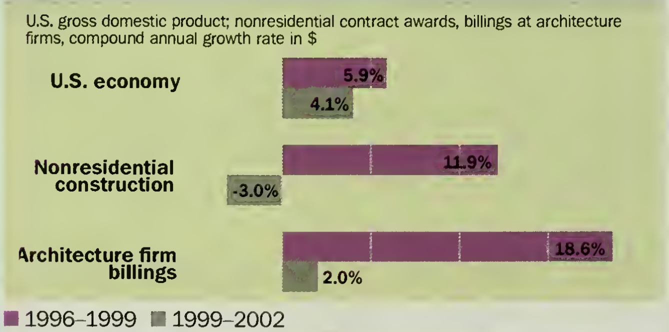
Looking at where architects are

By Charles Linn, FAIA

It's been five years since the beginning of the tech-market crash and the slowdown of the greatest bull market in construction history. The whiz-kid dot-com clients who were keeping architects busy in the late 1990s have gone out of business and back to school. The marketing department has rediscovered that face time is more important than bandwidth. They've updated the old brochures and sent them to the printer. The consultants who advised people to get out of their leases because telecommuting was making offices obsolete have rented themselves offices. Wet-behind-the-ears CAD jockeys aren't getting $40K plus a signing bonus anymore. Now that we have our feet on the ground, it's a good time for the profession to pour itself a cup of coffee and reflect on where we've been and where we're going.

The Business of Architecture: 2003 AIA Firm Survey is one of the profession's best benchmarks, and this article draws heavily on data provided by it. The survey has been conducted by the AIA every three years since 1988. This year, invitations to participate in the survey were sent out to 9,620 AIA-member-owned firms, and 1,383 firms—more than 14 percent—returned usable questionnaires. The report was prepared under the direction of AIA chief economist Kermit Baker, Hon. AIA. TechnoMetrica Market Intelligence collected and tabulated the data.

Figure 1.



GROWTH IN ARCHITECTURE FIRM BILLINGS OUTPERFORMS NONRESIDENTIAL SECTOR DURING UPTURN AND DOWNTURN

U.S. gross domestic product; nonresidential contract awards, billings at architecture firms, compound annual growth rate in $

Sources: U.S. Department of Commerce, McGraw-Hill Construction, The American Institute of Architects

We're doing all right—most of us, anyway

According to the survey, financially we're not doing as badly as some might think. During the period between 1999 and 2002, the growth in the U.S. gross domestic product slowed to 4 percent per year, according to the survey, while growth in architecture firms' billings dropped to 2 percent. That doesn't sound so great. But when you consider that nonresidential construction contracts declined by an average of

Record editors Jane F. Kolleeny and Sam Lubell contributed Point of Reference sections to this report.

and where we're going

with the help of the *2003 AIA Firm Survey*

3 percent over this period, we're doing well (Figure 1). The survey also notes that in 2002 more than half of all firms showed profits in the double digits; only one in seven showed a loss.

It is also worthwhile to consider that between 1996 and 1999 our profession was coming out of a period of such unprecedented prosperity—bolstered by large gains in productivity—that our perspective may have become distorted. During that time firm billings grew 18.6 percent, while the U.S. gross domestic product grew by 6 percent. As many of us said back then, "It would be easy to get used to this," and some did. To be fair, however, the current 2 percent growth in firm billings is a national average. Some architects who specialized in market sectors that have tanked, like commercial interiors, or who worked in areas of the country where tech and dot-coms were the big gorillas, have truly suffered. One architect in Southern California reports, "I've had my worst year ever—two years in a row."

Why we're doing well

How is it possible that architecture firm billings could outperform nonresidential construction contracts over the past three years? This statement seems illogical, because traditionally, the amount of money architects billed was in lockstep with the value of construction contracts. If one fell off, the other followed. But there has been a major shift in the way we do business that has separated us, somewhat, from our hard-hatted cousins. Firms have become more multidisciplinary in nature. They're offering services like green design, urban design, historic preservation, and engineering. These are things that used to be subcontracted to consultants. And architects have started to charge for services that were once thrown in for free during the course of design development, like graphics and lighting. The movement toward putting lots of services under one roof started in the 1990s and has not slowed during this survey period, making it appear that the firm that offers a substantial menu of services is becoming the norm.

A second reason that firms are doing well is that broadening their service offerings has allowed them to generate income on work that is unrelated to construction, and this has helped improve cash flow. New service offerings that seem to have survived from the 1990s are Web-site design, product design, and brand consulting.

A third reason that architects are doing well is that they have kept busy doing work in the residential sector. An ocean of low-interest-mortgage and home-refinancing money has buoyed residential work up to 12 percent of billings for firms of all sizes. Some of that money has found its way into the coffers of larger firms that normally would not do residential work.

Layoffs, sole practitioners, and vanishing firms

Firms also controlled cost as the work slowed, in part by reducing staff size. Payrolls declined by 2 percent per year during the survey period as a result of attrition, layoffs, and unfortunately, firm closings. When payroll numbers shift, so do statistics on firm size, and here there were some startling changes: In this survey period (Figure 2), the number of sole practitioners *increased* significantly. In the 1999 firm survey, sole practitioners made up 23 percent of firms. In the current survey, that number rose dramatically, to 31 percent.

Some of these individual practitioners had been laid off from other companies. Experienced—and sometimes well-paid—individuals are often the first to go when firms cut back. Others once worked in firms that have closed. The new solos are surviving for now because there is an abundance of residential work, the sole practitioner's bread and butter. But if residential work slows, and the COBRA plans and 401k savings of these not-sole-practitioner-by-choice professionals start running out, the profession could again see some of its most experienced and valuable members leaving the field to do other work. This happened during the last recession, and the profession still misses those experienced people. Meredith Berman, director of business develop-

Figure 2.

GAINS IN FIRM SIZE SLOW WITH RECENT RECESSION

		Percent of firms / Number of employees						
		1	2–4	5–9	10–19	20–49	50–99	100+
	1990	**30**	**36**	**20**	**9**	**5****	n/a	n/a
	1993	**31**	**35**	**20**	**8**	**6****	n/a	n/a
Years	**1996**	**34**	**26**	**21**	**10**	**6**	**3***	n/a
	1999	**23**	**30**	**23**	**11**	**8**	**3**	**2**
	2002	**31**	**29**	**18**	**11**	**7**	**2**	**2**

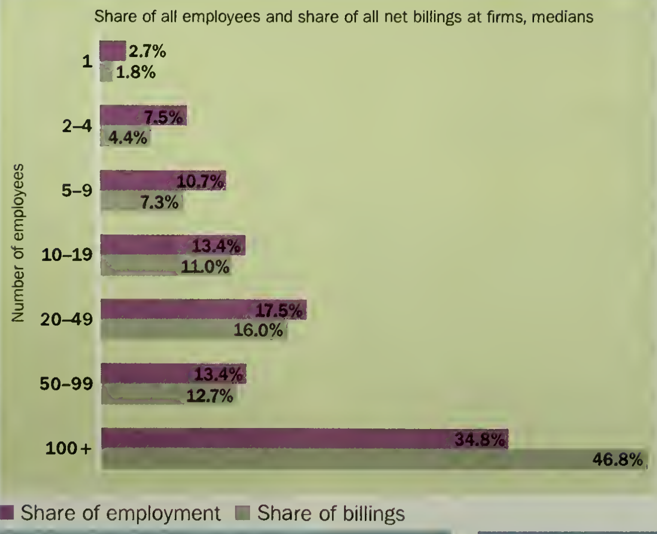
* includes all firms with 50 or more employees ** includes all firms with 20 or more employees

POINT OF REFERENCE

"We've been affected by the economy but not as much as some other firms. Firms that do developer work got hurt immediately. Most of our work is in the public sector, and because of the way public money is budgeted, if there is a shortfall it takes time for that to work its way to us. Almost all of the cities and states are hurting now, so getting new work funded is going to become a bigger challenge. On the other hand, if the economy turns around, architects who work for developers can start work immediately. Government work is at a whole different pace." ***Dennis Cusak, FAIA.*** *Dennis Cusak is a principal of SRG Partnership, a firm of 83 employees with offices in Portland, Oregon, and in Seattle.*

Figure 3.

100-PLUS-EMPLOYEE FIRMS ACCOUNT FOR ALMOST HALF OF BILLINGS



ment at Gruzen Sampton Architects in New York, says that the lack of midlevel project managers puts "pressure on less-experienced staff and upper-level managers alike. You worry that if the firm loses money because work is mishandled, more people will lose their jobs."

While the number of sole-practitioner firms increased, firms in the 5- to 9-employee range declined from 23 to 18 percent since the 1999 survey. One might assume that these firms have simply gotten a little bigger or a little smaller, but the number of firms in the ranges on either side has actually been steady—so apparently a number of these small firms have gone out of business. One theory is that small firms are disappearing because their business model just doesn't work anymore. There is just not enough income per seat to cover rent, computers, software licenses, salaries, employment taxes, retirement, liability coverage, and especially employee health insurance, along with a modest profit for the principals.

Another theory is that some of the now-closed smaller firms were located in small towns. Stan Peterson, AIA, principal of Peterson Architectural Group, Topeka, and a member of the Kansas Board of Technical Professions, details some of the problems faced by rural practitioners, saying, "When towns lose population, the government and school work disappears, or you find you're competing for it against big, out-of-town firms, and national retail and fast-food chains have their own designs and don't use local talent." Pre-engineered buildings are also a significant source of competition for architect-designed buildings. "It's just impossible for architects to recruit young people to work in these small towns," Peterson says.

Midsize and large firms

The number of firms in the ranges of 10 to 19, 20 to 49, and 50 to 99 employees parallels the last survey, although they are each billing about 1½ percent less than they were in 1999. These firms are not as multidisciplinary as the largest firms, and they tend either to be generalists or to specialize in a particular kind of work. On the other hand, smaller firms are sometimes more nimble, and can get into and out of markets more quickly. Generally, this is because the projects they take on are smaller and likely to be less complicated than those targeted by the big boys and don't require the depth of expertise. Midsize firms may also have an edge over larger firms when it comes to customer service.

At the far end of the spectrum, the number of large firms—those with more than 100 seats—is 2 percent, as it was in 1999. The large multidiscipline firm is here to stay because it can be quite profitable—they grabbed almost 47 percent of billings according to the 2003 survey (Figure 3). Large firms are also faring well now because they can develop the marketing contacts and expertise needed to create studios for multiple building types, and they can do a few signature buildings on short margins to establish a reputation. It takes years, a lot of money, and good management to get there. But the result is that the firm's risk is distributed over several markets, and sometimes multiple offices, just as an investor creates a balanced investment portfolio. If one of the firm's market sectors goes soft, personnel can be shifted from one studio to a more active one, balancing the equation.

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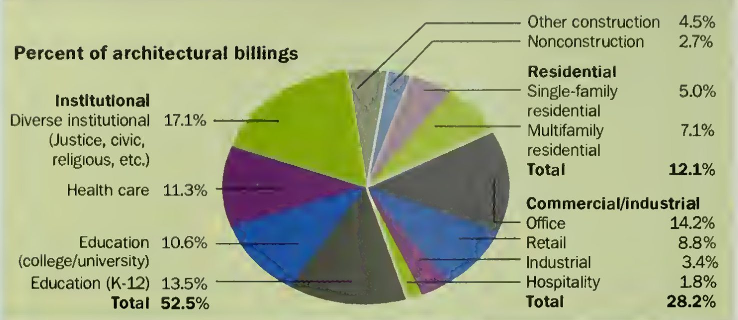
Figure 4.

INSTITUTIONAL BUILDING SHARE IS OVER 50 PERCENT OF FIRM BILLINGS



Active building types, marketing, and fees

Good marketers are like good investors. They combine analysis with intuition to predict what building types are going to be hot in the future. Ideas emerge from listening to the news, looking at what essential buildings are coming up for replacement locally, even eavesdropping on the conversations of people outside the profession and weighing them against common sense. Of course, most marketers gather information from the construction-data services.

But long-term trends are still the backbone of most firm managers' market decisions, and figuring out where the work has been recently may help architects set their sights on where it will go. In 2002, according to the survey, about 52 percent of all firm billings came from the institutional building market: K-12, health care, and higher education grabbed 13.5, 11.3, and 10.6 percent, respectively (Figure 4). The other big markets are in the commercial sector. While office construction is hurting, at 14.2 percent, it still owns a big piece of the profession's billings. Consumers seem to be doing their part to support the economy, and retail carried 8.8 percent of billings. The other markets, like justice, civic, hotels, and religious, carry between 2 and 5 percent of firm billings.

Despite the fact that expanding service offerings seem to have given firms the economic edge they needed to stay profitable, 51 percent of the firms surveyed say that their greatest growth has come from basic services like design (Figure 5), and 48 percent say these are the most profitable services they offer. While architects often bemoan the fact that they have less control over what's happening on the construction site, they have given up this control knowing it was a losing business segment. According to the survey, 26 percent reported that they consider construction services to be the least profitable of all the services they offer. Instead, they put their time where it will yield the most benefits. Remarkably, 40 percent of firm billings came from rehabilitation projects. This supports the notion that when times are tough, clients remodel rather than build. It may also indicate that urban areas—where almost all of the work fits the into the rehab category—are making a comeback.

Architectural management consultant Mark Zweig of ZweigWhite, summing up what's going on with fees, says, "Right now, they're stuck or going down. It's simply a matter of supply and demand. There are fewer projects to go around and more firms with the capacity to do them. Fees are getting squeezed." Steven Ehrlich, FAIA, of Steve Ehrlich Architects, Culver City, California, echoes the sentiment, saying, "The times are making the fees incredibly tough. The amount of service demanded and the unknown variables make it hard."

When times get tough, marketing departments get busy. Meredith Berman says, "Firms are marketing more ferociously than ever—many marketing coordinators from across New York will tell you that this summer was the busiest ever in terms of ceaseless deadlines for

POINT OF REFERENCE

"While the economic news sounds good, we lag behind the general economy—when you get more work depends on when state government gets out of debt. What we've noticed, at least in public-sector work, is that in boom times there may have been six to 15 people submitting for a job. Now there are 40 or 50 firms submitting. I heard on one GSA job they got 80 submittals. How do they review 80 submittals?" ***Jim Jankowski, FAIA.*** *Jim Jankowski is a principal of Ross Barney + Jankowski, with 27 employees, in Chicago.*

POINT OF REFERENCE

"Firms are seeing more commodity-level fees. It takes special business models to succeed with 5.5 percent fees, but these can work and be profitable, too, as long as the scope of work is properly defined and the firm is efficiently managed. It is possible for a firm to fail even with 17 percent fees. Business management excellence is especially needed in these uncertain economic times." ***James P. Cramer, Hon. AIA.*** *James P. Cramer is chairman and C.E.O. of the Greenway Group, Atlanta.*

Figure 5.

MOST FIRMS REPORT GREATEST GROWTH IN BASIC SERVICES

Service category experiencing most growth in recent years, percent of firms

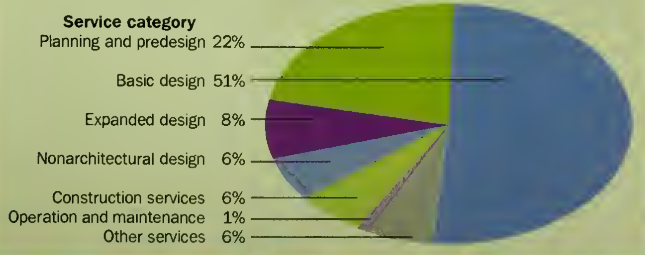


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Figure 6.

FIRMS RELY HEAVILY ON NONCOMPETITIVE SELECTION FOR PROJECTS

Percent of billings by source of work, average across firms

	ALL FIRMS	1	2-4	5-9	10-19	20-49	50-99	100+
Repeat clients, noncompetitive selection	47%	49%	46%	45%	44%	48%	42%	39%
Repeat clients, competitive selection	12%	7%	10%	14%	21%	22%	23%	28%
New clients, noncompetitive selection	22%	30%	24%	20%	14%	10%	9%	7%
New clients, competitive selection	19%	14%	20%	21%	21%	20%	26%	26%

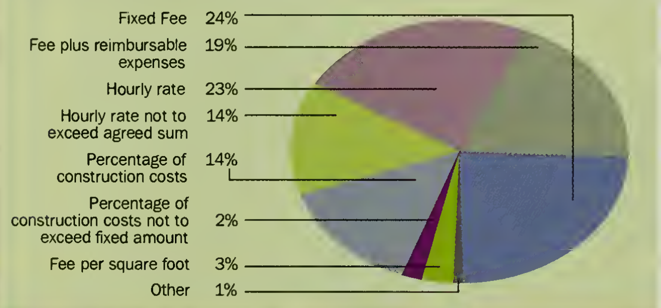
POINT OF REFERENCE

"Architects are typically considered the canaries in the coal mine for the economy—they sniff the air to see if it's lethal. Many architects have learned how to survive breathing the toxic air of economic change. We have. We think of an architectural practice as a table—if it has six legs, you can lose two and still be stable. Nobody predicted that corporate interiors would take such a dive. We were taken by surprise in 2002 and cut 6 or 7 percent of our firm's personnel. To mitigate our losses, we aggressively pursued overseas work and made a significant effort to expand our practice in China. Now we keep 50 people busy with work in China alone." *Brad Perkins, FAIA.* *Brad Perkins is chairman and C.E.O. of Perkins Eastman Architects, with 400 employees, based in New York.*

Figure 7.

OVER 40 PERCENT OF FIRM BILLINGS COME FROM FIXED-FEE PROJECTS, HOURLY RATE CLOSE BEHIND

Average percent of gross billings by contract billing method, averages across all firms



POINT OF REFERENCE

"Over the years our firm has survived a couple of significant economic downturns. I attribute this to our diverse portfolio of services and our ability to quickly adapt to market conditions. In a world full of specialty firms, clients want to know not only that you have experience in a particular market type, but how many of that type you have done. Specialty firms have an advantage in good times but suffer dramatically when work in that area dries up." *Larry Scarpa, AIA.* *Larry Scarpa is principal of Pugh + Scarpa, a firm of 20 employees located in Santa Monica, California.*

proposals. Clients want more material in less time than ever." Her employer, Gruzen Sampton Architects, has 140 employees, and large firms like hers get more than half their work through competitive selection. Smaller firms get as much as 79 percent of their work from noncompetitive selection—and much of this is from repeat clients (Figure 6).

Some part of every proposal for new work has to do with how the firm will be paid—at the time of the survey, firms were reporting that about 43 percent of billings came from fixed fees, and about 37 percent came from hourly rates (Figure 7). The use of flat percent-of-construction-cost agreements has declined in recent years to 14 percent. Clients have become much more intent on controlling how much they're going to spend on fees up front, or they want precise accounting of how billable hours were used. Percent-of-cost agreements do not tend to give clients this kind of oversight.

Uncertainty = opportunity?

Predicting what markets will present opportunity this year and the next is like shooting at a moving target. The only sure thing is that people seem uncertain about what's ahead. According to Kermit Baker, the future "looks like a little bit of a seesaw." According to his statistics, 30 to 40 percent of firms are predicting growth next year, but their level of certainty is extremely low. An almost equal number of firms, he says, are predicting no growth, with an extremely low level of certainty. Meanwhile, the numbers for his "Work on the Boards" surveys published monthly in *AIArchitect* have been constantly alternating between losses and gains this year, but are slowly edging up.

Things may be uncertain, but there are always firms who answer the door when opportunity knocks. Three principals of NBBJ Architects' Seattle office decided to leave that firm earlier this year [see RECORD, November 2003, page 32] and opened an office in the city for SRG Partnership of Portland, Oregon. With growth in Seattle teetering, and virtually nonexistent in Oregon, it would take a group of pretty optimistic people to put such a deal together. Their leader, John Schluening, FAIA, was a founder of SRG 30 years ago, and he has seen a few recessions. However, his outlook is sunny: "The biggest opportunity for growth and to reposition your firm occurs in these kinds of times. Transitional periods are magnificent because clients are rethinking what they do. We want our clients to say to themselves, 'This firm understands us, because they're going through the same thing we are.' When people were saying, 'You ought to focus. You ought to do less rather than more,' we said, 'Let's address the times by being good at being creative, not by being good at cutting back.' "

Schluening's is a position worth considering. If anything can be taken away from the current AIA firm survey, it is that the firms that are doing well now are those that take the long view. If they're big enough, they are active in several locations and market sectors. They offer more than basic services. When work slows, firms often cut back on marketing and lay off experienced people. The cost-cutting measures can make it hard to take advantage of opportunities that occur when the economy improves. ■

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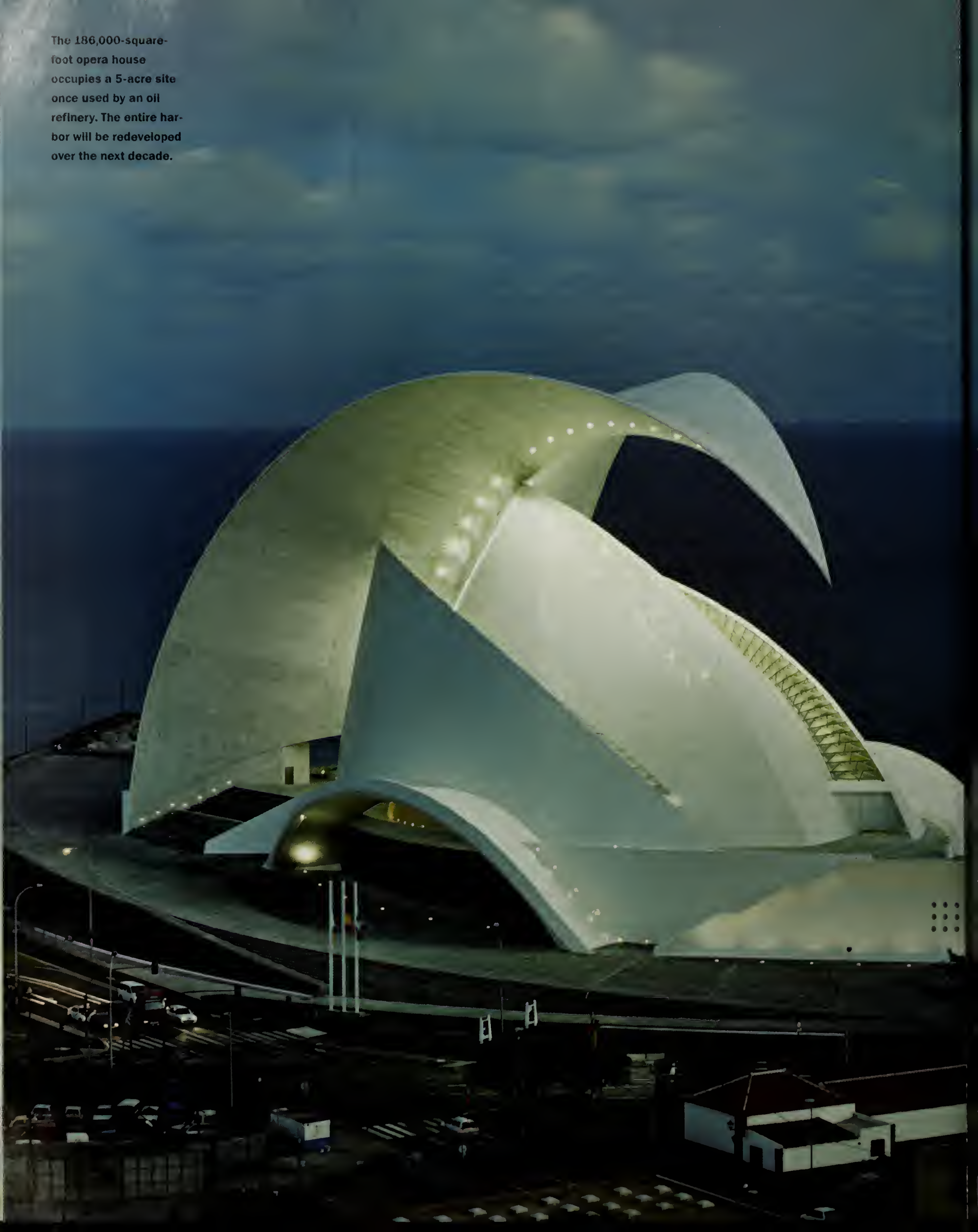
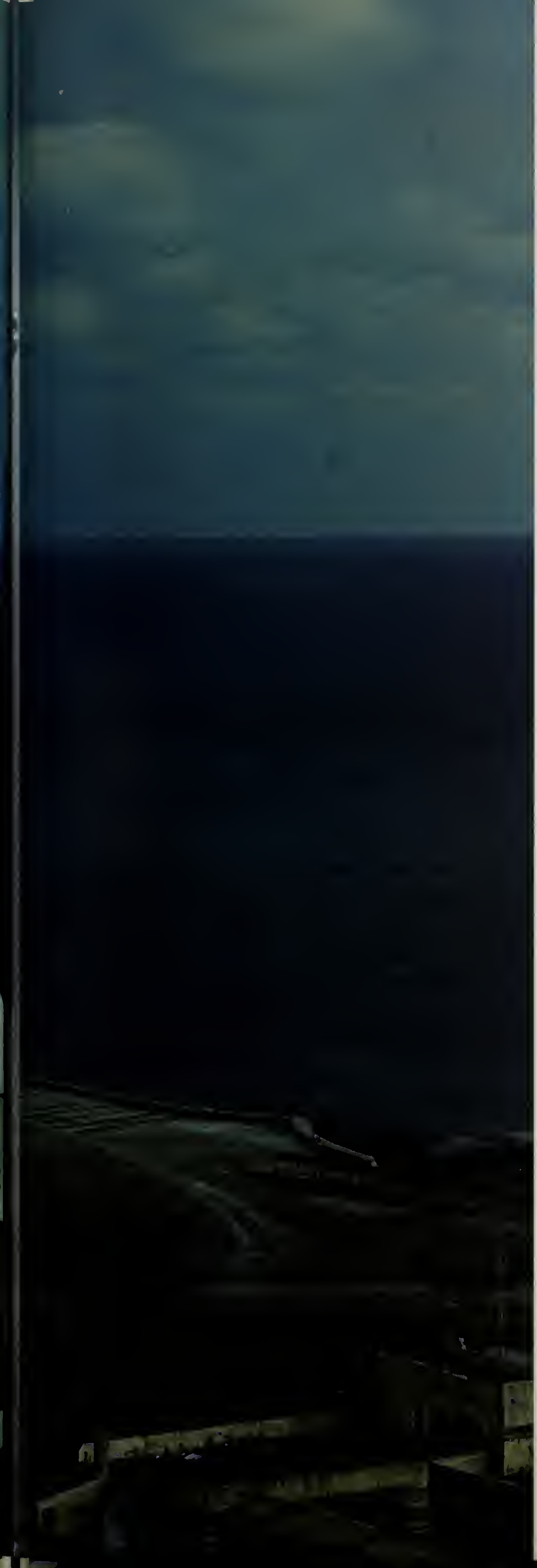
The 186,000-square-foot opera house occupies a 5-acre site once used by an oil refinery. The entire harbor will be redeveloped over the next decade.





PHOTOGRAPHY: © ALAN KARCHMER/ESTO

Santiago Calatrava sets concrete in motion at the AUDITORIO DE TENERIFE in the Canary Islands

By Clifford A. Pearson

Most of the debate about Santiago Calatrava's new opera house in Santa Cruz de Tenerife has focused on its imagery and form. Is it a giant eye, opening a sleepy lid, or a wave crashing against the shore? Is that enormous curving element bending over the concrete shells of the performing spaces a protective wing, a sensual leaf, or a threatening spike? Such talk is understandable, considering the building's larger-than-life, sculptural swagger. But its success or failure depends only partly on its role as an architectural object. The true test of this $75 million project will be its impact on an even grander scheme: the transformation of Tenerife's industrialized waterfront into a 21st-century cultural district. The largest of the seven Canary Islands—volcanic outposts of Spanish rule off the coast of Morocco—Tenerife has flourished mostly as a place for European tourists to bake on beaches and party in discos. The opera house—officially called the Auditorio de Tenerife—aims to lure some of these vacationers away from the resorts and into town.

Built on land that had previously been occupied by an oil refinery, the Auditorio helps reconnect Santa Cruz (the largest city on Tenerife) to its old harbor and the great blue expanse of the Atlantic Ocean. Calatrava's 1996 convention center, with its 890-foot-long steel arch and ring of concrete buttresses, stands nearby, as does the Presidency Building, the ruggedly handsome government seat designed by the talented local firm AMP Arquitectos [RECORD, March 2001, page 100]. Using this cluster of civic structures as the foundation of a cultural hub, the island has hired Herzog & de Meuron to design the Museo Óscar Domínguez and develop a master plan for the harbor district known as Cabo Llanos. The idea is to create a vibrant mixed-use neighborhood that can accommodate the residents' love of music and the arts and give tourists something other than the sun to appreciate.

Residents of Tenerife had talked about building a concert hall

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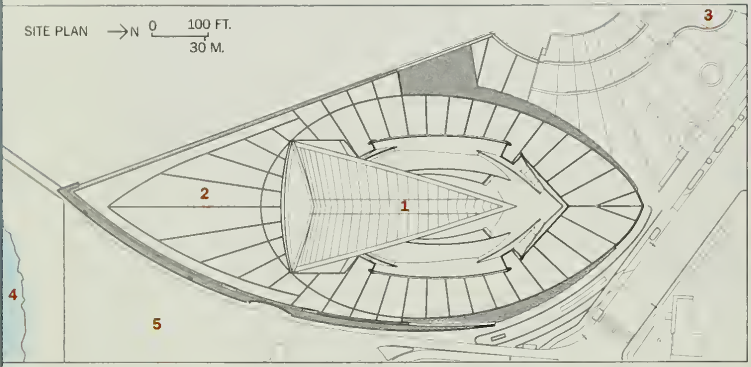
Project: *Auditorio de Tenerife, Santa Cruz de Tenerife, Canary Islands, Spain*
Client: *Cabildo Insular de Tenerife (Tenerife Town Council)—Ricardo Melchior Navarro, head of council; Cabildo de Canario (government of the Canary Islands)—Adán Martin Menís, president; Auditorio de Tenerife—Enrique Rojas Guillem, general manager*
Architect: *Santiago Calatrava*
Consultants: *García-BBM (acoustics)—Alfonso García*
General contractor: *Ute Auditorio de Tenerife (Necso, Entrecanales & Cubiertas; Dragados & Construcciones)*

1. *Auditorio*
2. *Plaza*
3. *Maritime park*
4. *Harbor*
5. *Cabo Llanos*

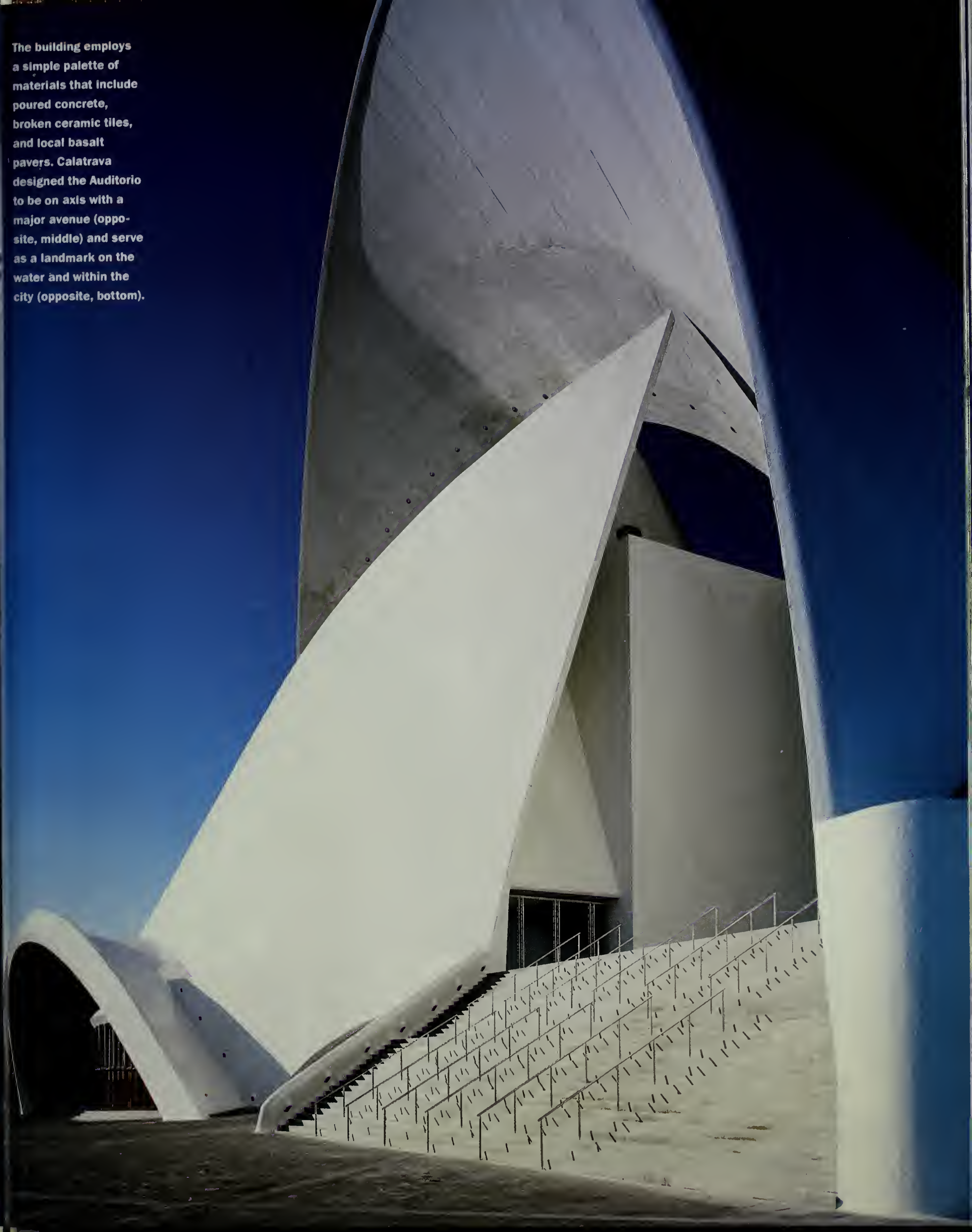


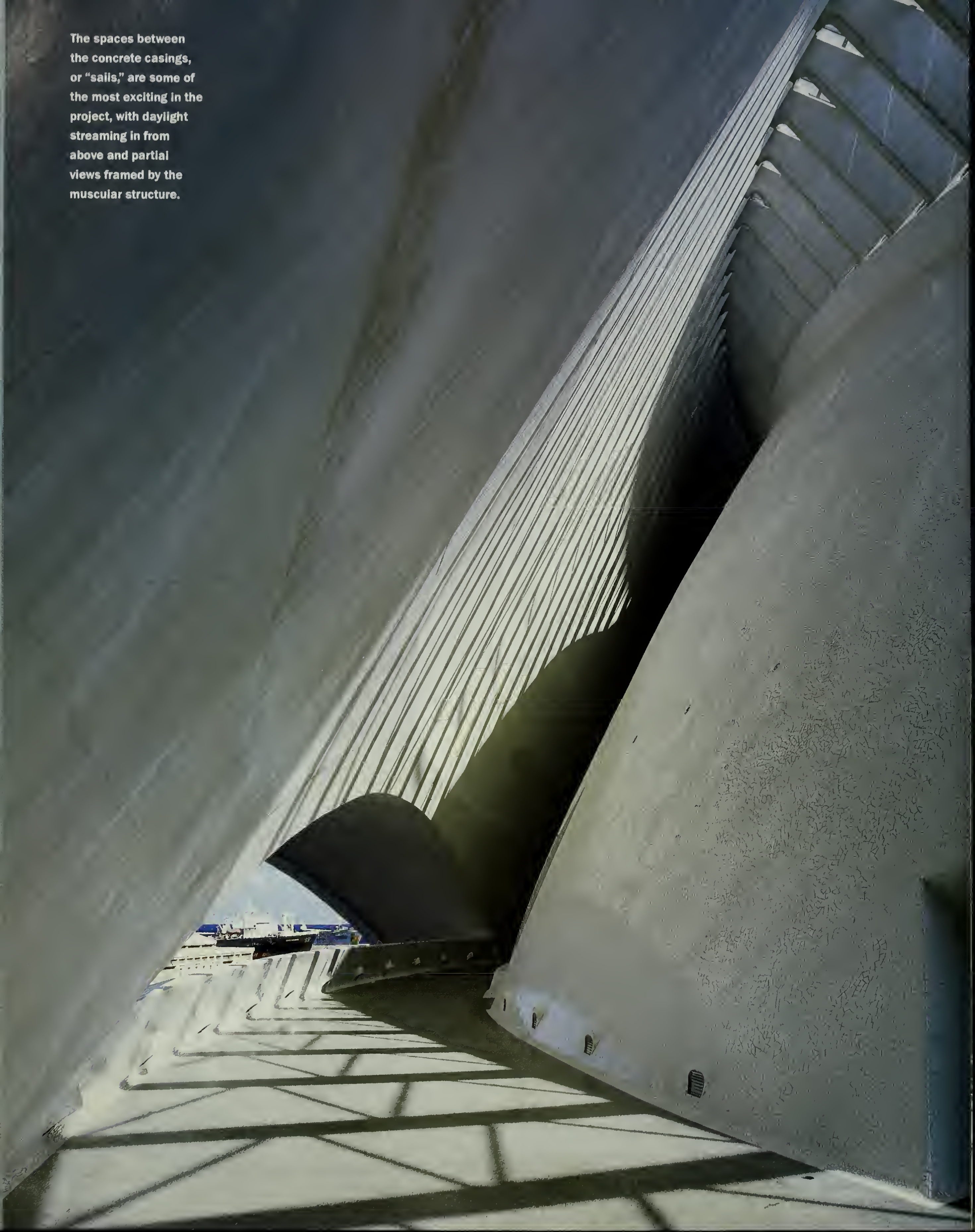
since the mid-1970s, and the island's government had set aside funds for the project starting in 1984. After initially thinking small and quick, the authorities decided to expand the scope of the project and hire a star architect to create a world-class opera house. In 1992, Calatrava got the job. Over the course of the next four years, the project continued to grow in size and ambition, with the addition of a chamber music hall to go along with the main concert hall. In 1996, the government moved the project to a larger site closer to the water. Even after construction began in 1997, the program kept evolving, with the inclusion of a 250-car parking structure for the Auditorio, rehearsal and support facilities for the Tenerife Symphony Orchestra, and a 173,000-square-foot public plaza around the building. Finally, in September 2003, the project opened with an inaugural concert attended by Crown Prince Felipe of Spain.

The building displays a level of architectural showmanship that makes some people uncomfortable. A number of Spanish architects and writers have criticized Calatrava for creating a building where dramatic gestural elements seem unmoored from the discipline of function [see David Cohn's essay "Excess and Enthusiasm" at www.architecturalrecord.com/inthecauseofarchitecture/]. Observers accustomed to the spare geometries dominating much of today's Spanish architecture find it difficult, in particular, to accept the Auditorio's monumental cantilevered arch, which serves as the project's visual centerpiece but plays no structural role in supporting the hall itself. The Auditorio's critical position on an emerging waterfront and its role as urban catalyst, though, demand an iconic form that commands attention—much as the Sydney Opera House and Calatrava's own addition to the Milwaukee Art Museum do. And a certain amount of showiness seems appropriate for an opera house.

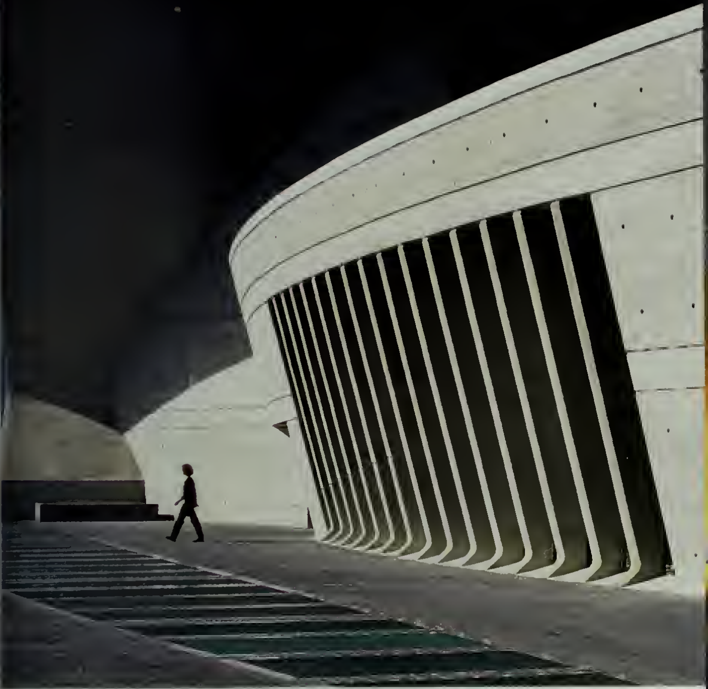
Although trained as both an engineer and architect in fastidious Switzerland, Calatrava shares certain emotional and intellectual concerns with Baroque masters such as Borromini: a love of mathematics and a belief in the transcendental power of complex geometries. The Auditorio's

The building employs a simple palette of materials that include poured concrete, broken ceramic tiles, and local basalt pavers. Calatrava designed the Auditorio to be on axis with a major avenue (opposite, middle) and serve as a landmark on the water and within the city (opposite, bottom).





The spaces between the concrete casings, or "sails," are some of the most exciting in the project, with daylight streaming in from above and partial views framed by the muscular structure.

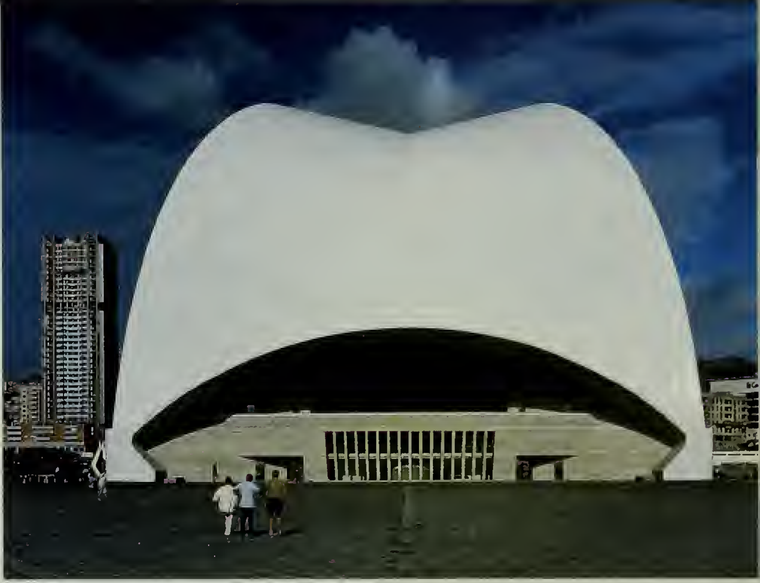


elongated oval plan and plastic approach to form recall the Baroque spirit, as does Calatrava's delight in using the static elements of architecture to create a sense of movement.

While critics want to pin down the building's imagery, Calatrava says he is happy with its "multiplicity of interpretations." Explaining the design, he says, "The shape of the building is suggestive of many things, just as music is suggestive of many things." Part of the reason the Auditorio seems so slippery in meaning is that it doesn't really have a front or rear facade. Instead, it is what Calatrava calls a "penetrable sculpture," sitting on a shiplike base and approached from a plaza that wraps all around it.

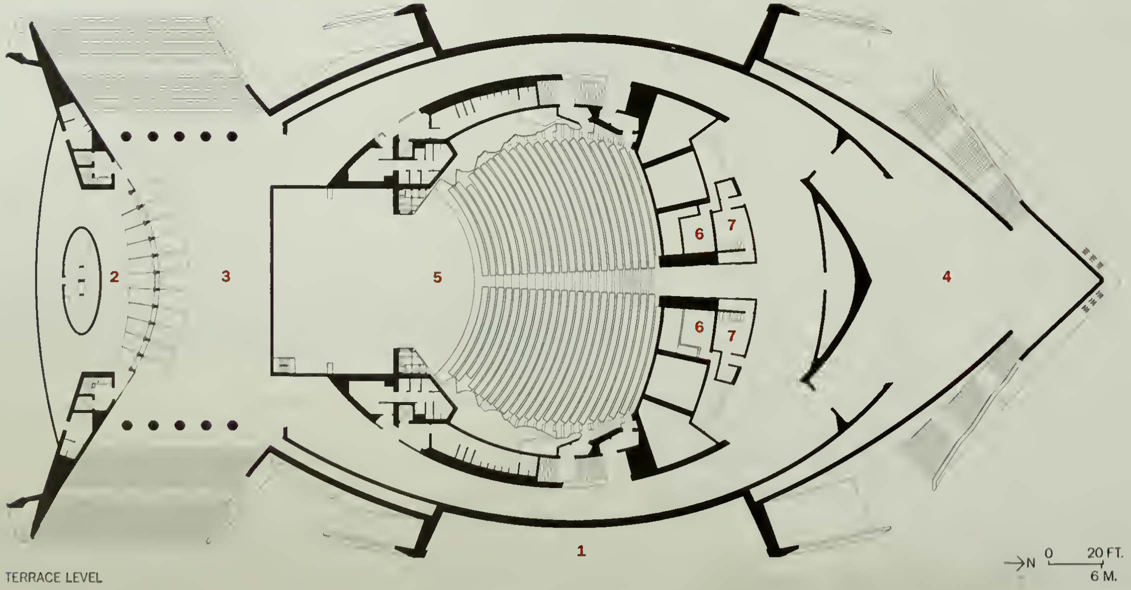
Inspired by the island's geology, the architect gathered the project's two main spaces—a 1,600-seat symphonic hall and a 428-seat chamber music hall—under a sloping concrete volcano and tucked support areas for the orchestra as well as parking below the plaza. The building's double layer of concrete casings, or "sails," which stand 98 feet high, ensures acoustic isolation for the concert halls. The Auditorio's trademark "wing," a steel-frame structure built in pieces in Seville then lifted into place by giant cranes, arches over the two halls and rests at three points on the concrete sails. Weighing 3,500 tons, the tapered and curved wing is anchored at its south end, rising nearly 200 feet and extending 320 feet from base to tip. To reduce costs, Calatrava used a simple palette of exterior materials: concrete and broken ceramic tiles known as *trencadis*. Nearly the same in color but different in texture, the two materials play off each other in fascinating ways, especially as the light changes during the day.

The Canary Islands enjoy a fairly constant, temperate climate, so Calatrava created a series of outdoor and protected spaces that turn out to



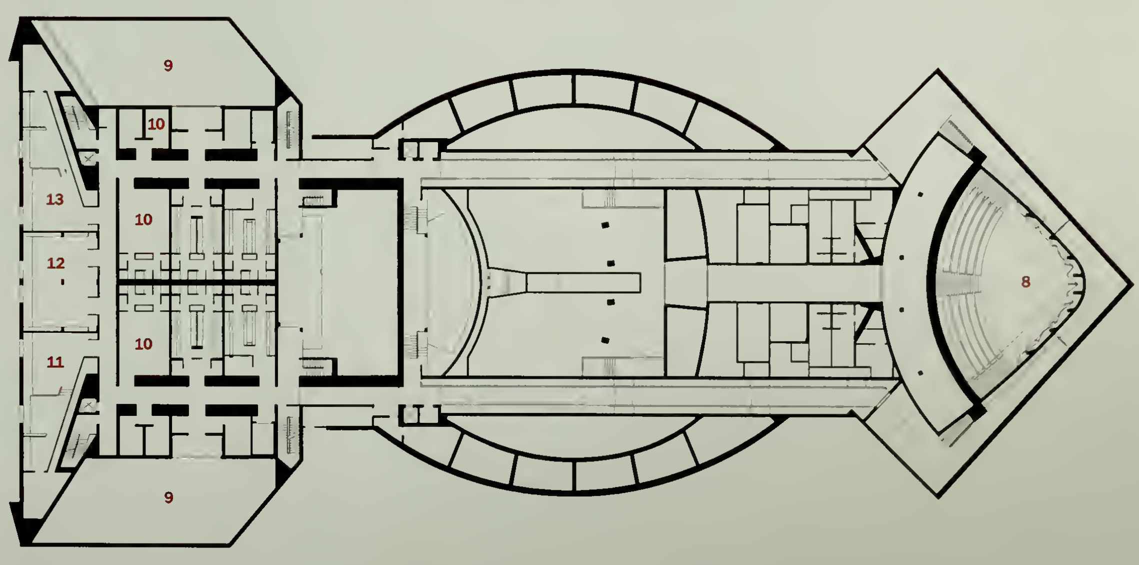
The building's relationship to the water, sky, and city informs the way it frames views (top right) and occupies its grand public plaza (above). Glass panels set in the plaza (top left) bring daylight into the parking structure below. The plaza connects with a maritime park to the southwest of the project.

Taking advantage of the Canary Islands' temperate climate, Calatrava designed the main entrances as curving walls of glass-and-wood that can swing up and open (bottom left) or remain closed (top left). The 4,000-square-foot lobby (opposite) serves both the symphony hall and the small chamber music hall. A stair to the upper seating levels of the symphony hall winds between the building's two concrete shells (right).

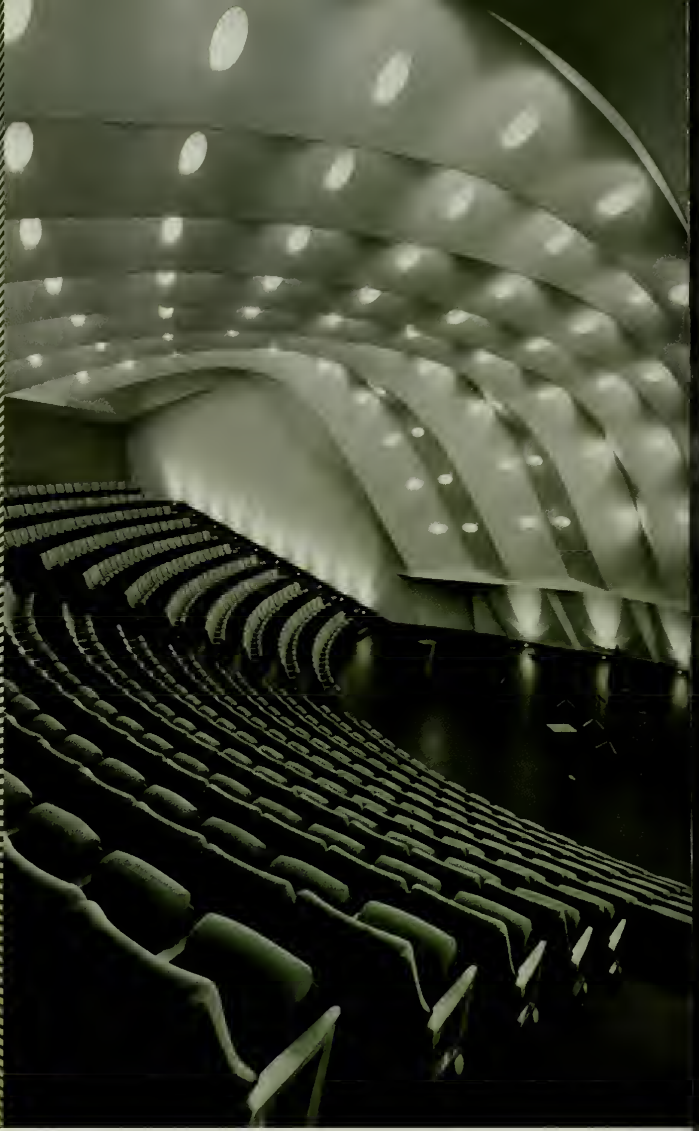


1. *Plaza*
2. *Bar/café*
3. *South terrace*
4. *North terrace*
5. *Symphony hal*
6. *Control room*
7. *VIP room*

Chamber music hall
Rehearsal
Dressing room
Makeup room
Costumes
Hairdressing



MUSIC HALL LEVEL



be as dynamic as the now-famous wing. From the plaza, a grand flight of stairs on the north side of the building and its twin on the south take visitors to an upper terrace sheltered between the wing overhead and the concert hall structure to the west. From here, visitors can look in three directions—to the city, the mountains, and (through an arched opening in the base of the wing) the sea—while sipping wine procured from a strategically located granite bar. A second upper terrace on the city (west) side of the building offers open views to the sky. Even the 13,000-square-foot lobby shared by the two music halls can feel practically outdoors when the curving glass-and-wood entry walls at either end of the space swing up to form canopies. After buying their tickets, concertgoers enjoy another spatial treat—ascending the skylighted, curving stone stairs set between the building's two concrete shells.

The chamber music hall, which can be used for a variety of shows and events, has a sleek Moderne feeling with an accordianlike ceiling inset with large porthole lights. Its semicircular stage covers 1,700 square feet with a maximum width of 60 feet.

After all the razzle-dazzle on the outside, the symphony hall needed to be a spectacular piece of architecture. Calatrava delivers with a grand room that sweeps skyward in a series of convex sound reflectors, culminating in a starburst skylight. The spatial effect recalls Borromini's remarkable interior of Sant'Ivo alla Sapienza in Rome. With a stage that is 50 feet wide, 45 feet deep, and more than 32 feet high, the hall can accommodate opera as well as philharmonic performances. A remarkable "curtain," designed by Calatrava and made of a curving array of plaster-covered aluminum slats, rises to form a canopy over the orchestra pit.

With 150,000 inhabitants, Santa Cruz de Tenerife equals the population of Florence in the Middle Ages, notes Calatrava. Forsaking modesty, he says he envisioned the Auditorio as a cathedral rising above the city. Times may have changed and Filippo Brunelleschi may not be around to argue, but Calatrava has picked up the mantle of architect-engineer and created a memorable landmark for a city in the process of remaking itself. ■

Sources

***Trencadis* (broken ceramic tile):** *Proy. Cerámico Trencadís*

Basalt stone paving for plaza: *Guaramico*

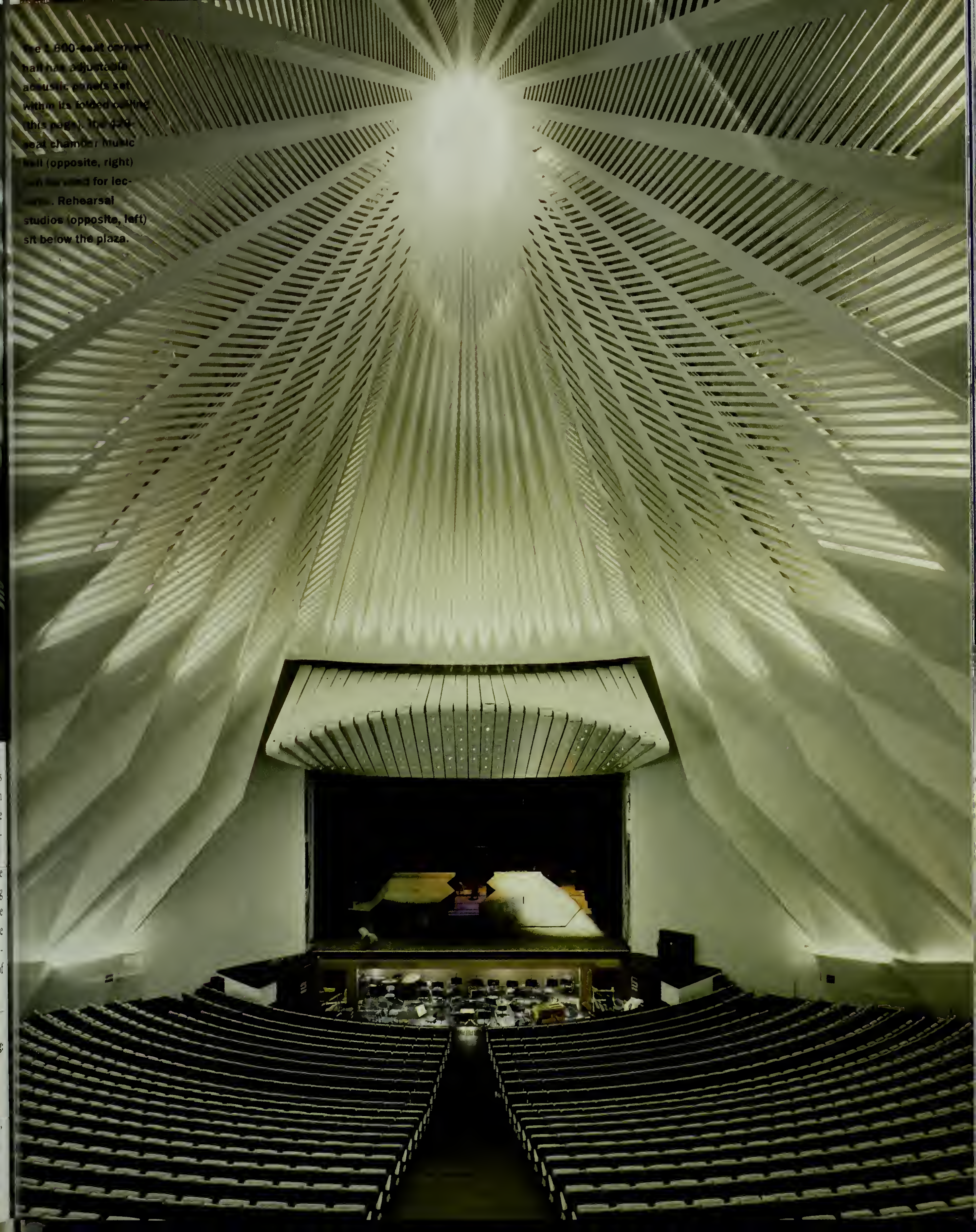
Concert hall and music hall seats: *Ezcaray, designed by Calatrava*

Concert hall plaster: *Sistemas Romero*

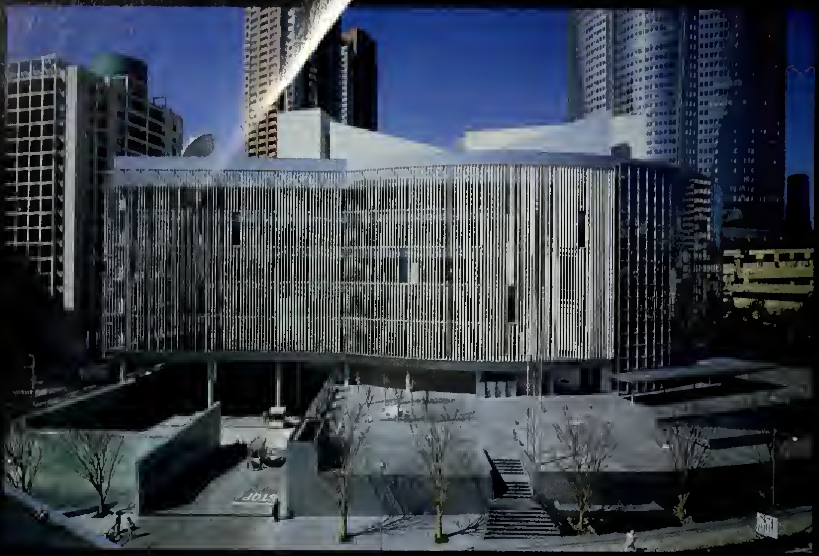
Carpentry, wood paneling, flooring: *Frapont*

Formwork: *Encofrados Peri*

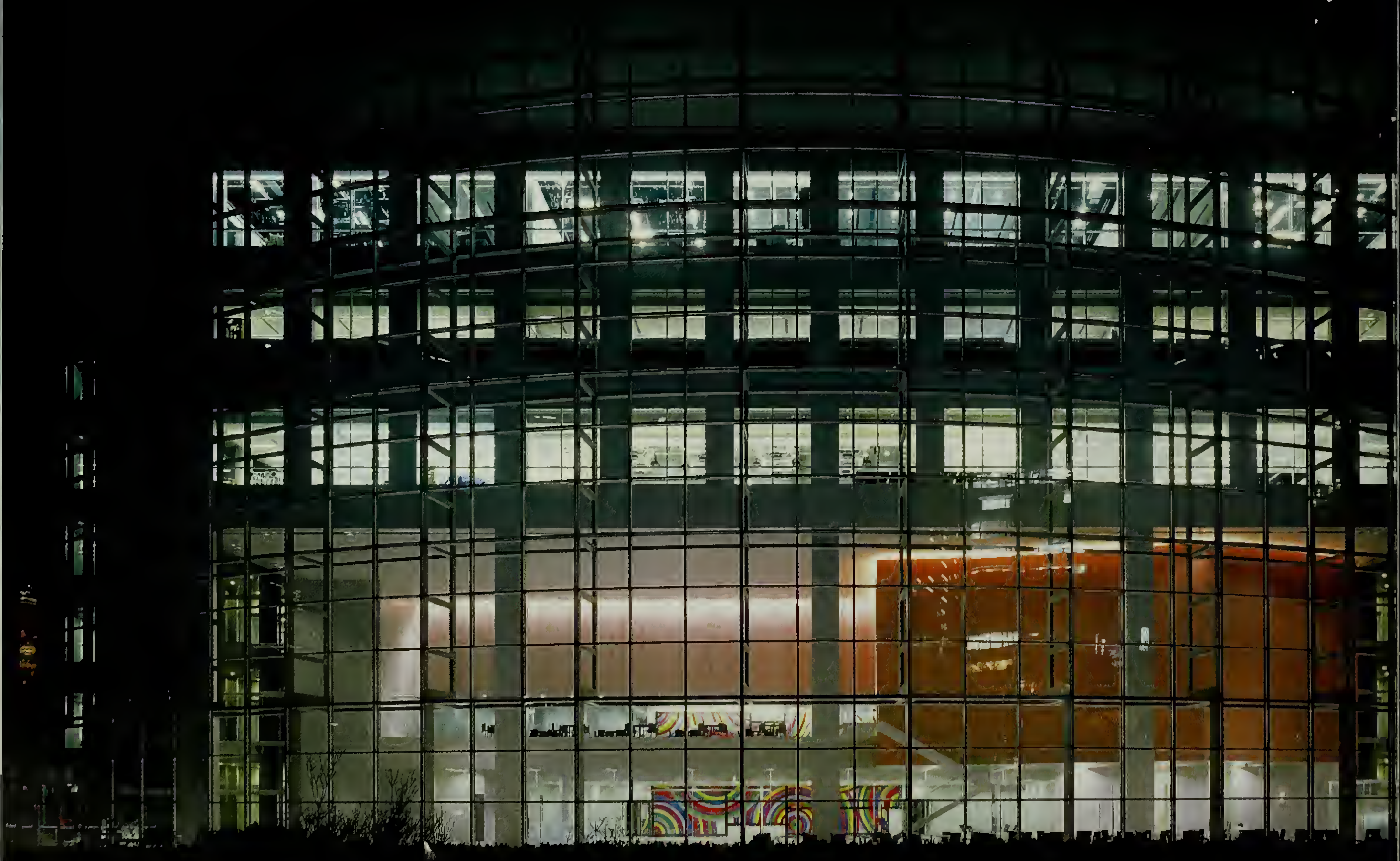
For more information on this project, go to Projects at **www.architecturalrecord.com**.



The 1,800-seat concert hall has adjustable acoustic panels set within its folded ceiling (this page). The 428-seat chamber music hall (opposite, right) can be used for lectures. Rehearsal studios (opposite, left) sit below the plaza.



An island of low-rise elegance set within Tokyo's urban jumble (opposite), TV Asahi offers a sweeping glass atrium to the north (below) and a raised plaza to the east (left), where seating and art engage the public.



Fumihiko **Maki's** new headquarters for **TV ASAHI** uses elegance and innovation rather than size or glitz to attract attention in sleepless, bustling Tokyo

By Naomi R. Pollock, AIA

TV Asahi's new headquarters is a building that never sleeps. Designed by one of Japan's modern masters, Fumihiko Maki, it transmits news and other programs 24 hours a day, 365 days a year. The new home of one of Japan's five major private networks, the state-of-the-art broadcasting center replaces and consolidates facilities that had been distributed among several nearby locations. Filling a corner of Roppongi Hills, Tokyo's flashiest new multiuse complex, the building bears Maki's trademark elegance yet is as dramatic as the made-for-TV period pieces staged inside. The building quietly steals the show from its glitzier office and retail neighbors at Roppongi Hills, especially at night when its bulk recedes into darkness but its glass-enclosed atrium continues to glow, a gentle reminder that the station teems with activity long after everyone else has gone to bed.

But how did a TV station end up in a 28-acre, $2.5 billion mecca of consumerism in the middle of Tokyo? The most ambitious urban development in Tokyo's recent history, Roppongi Hills is the brainchild of real estate magnate Minoru Mori, who, with a consortium of landowners, leveled an existing residential neighborhood and replaced it with a 54-story office tower, several apartment buildings, dozens of restaurants, a multiplex movie theater, a Grand Hyatt hotel, and even a traditional Japanese garden, and tied them all together with mazelike shopping arcades. (See page 142 for the Louis Vuitton store at Roppongi Hills and RECORD, January 2004, page 106, for the Mori Art Museum at the complex.) It was the sale of the network's property—TV Asahi had been a major landowner in the area since the 1950s—that made Roppongi Hills possible and paid for the network's new building there.

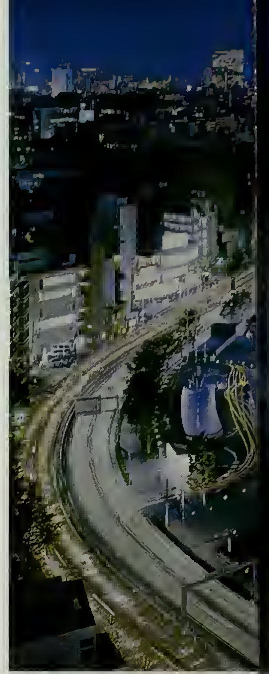
TV Asahi could have had a tower of its own if it had built elsewhere, but the company chose a corner lot encumbered by height restrictions. In response, Maki created an 800,000-square-foot, keyhole-shaped building. Though only eight stories high (plus three basements), the unusually large floor plates (102,000 square feet) met the client's request for studios in the middle of the building, where they can be within easy reach of support functions and station executives. Forming the building core, the four main studios are encased in 3.3-foot-thick, reinforced-concrete walls that not only mute outside noise and seismic forces but also serve as the primary structural support for the whole building. "In the event of a large earthquake, a TV station must be able to transmit information continuously," explains the architect. In the studios, absolutely level floors stabilize images coming out of the camera, while walls tilted precisely three degrees and curved at the corners prevent flat echoes.

Naomi R. Pollock, AIA, RECORD's special international correspondent, writes about architecture and design from Tokyo.

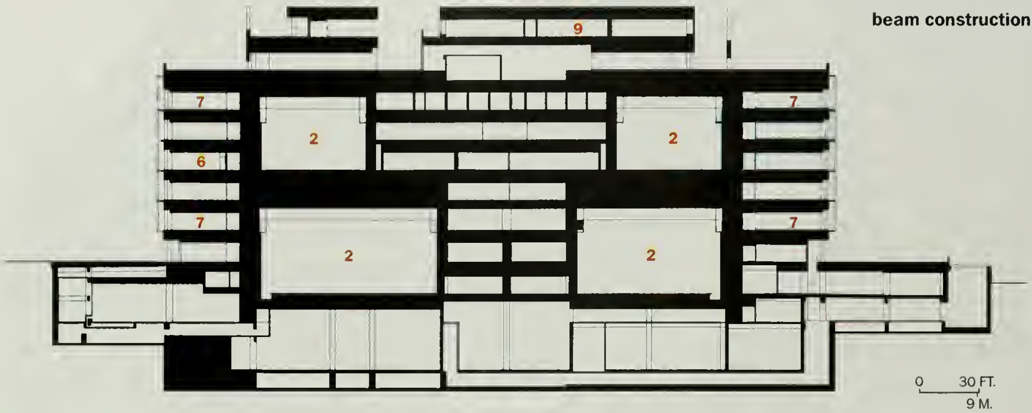
A spectacular, six-story-high atrium and entry lobby serves as the interface between station and city. On the other side of the building, shops and a gallery line a street edge, while offices wrap around studios upstairs. Where the building steps back at the seventh floor, it opens onto rooftop landscaping and city views. Because TV Asahi is one of the lowest

Project: *TV Asahi Headquarters, Tokyo, Japan*
Architect: *Fumihiko Maki + Maki and Associates—Fumihiko Maki, principal; Tomoyoshi Fukunaga, associate in charge; Takao Masuda; project manager; Masahiro Chiba, Yasuo Nakata, project architects; Kazuo Sato, Masaru Sasaki, design team*
Engineers: *Structural Design Group (structural); Sogo Consultants (mechanical)*
Consultants: *Studio On Site (roof garden); Lighting Planning Associates (lighting)*
General contractor: *Takenaka*

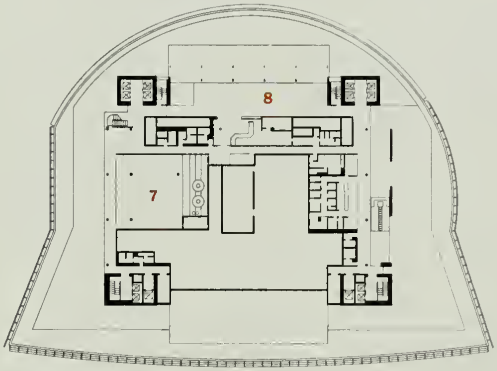
The atrium looks onto a garden and outdoor stage (right). In the atrium, vierendeel trusses 396 feet long are held together by pin joints (drawing, opposite), recalling old Japanese post-and-beam construction.



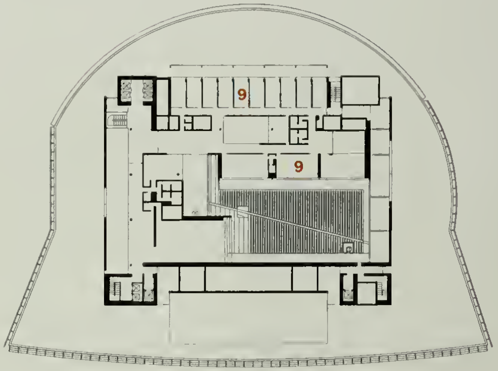
1. *Atrium*
2. *Studio*
3. *Gallery*
4. *Shops*
5. *Newsroom*
6. *Greenroom*
7. *Offices*
8. *Cafeteria*
9. *Board members' area*



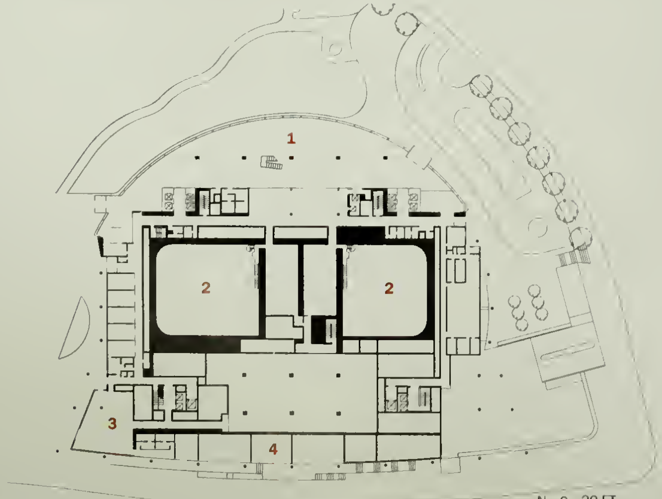
EAST-WEST SECTION



SEVENTH FLOOR



EIGHTH FLOOR



FIRST FLOOR

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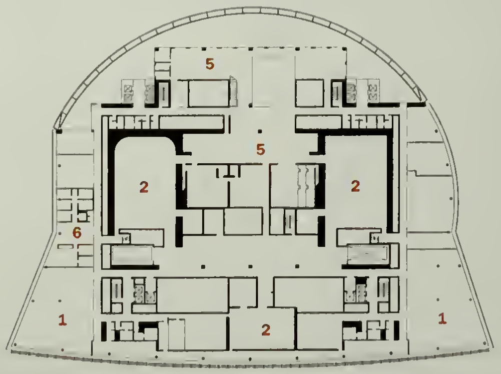
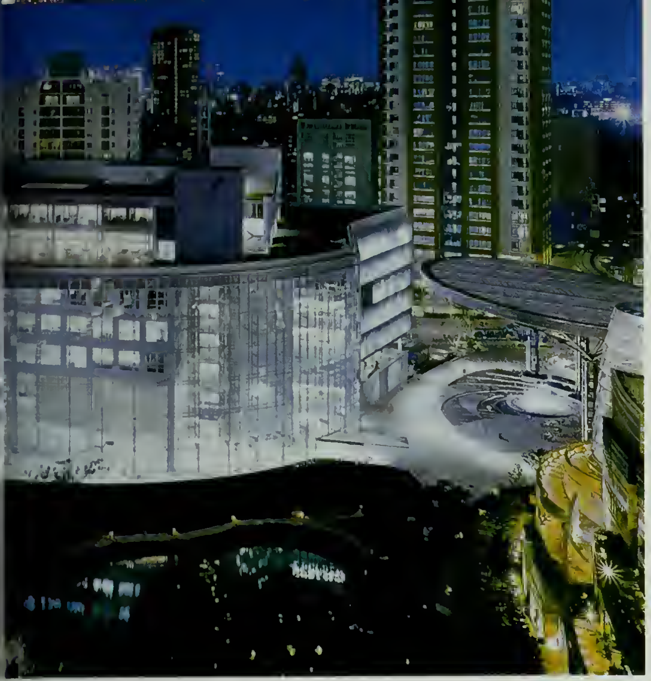
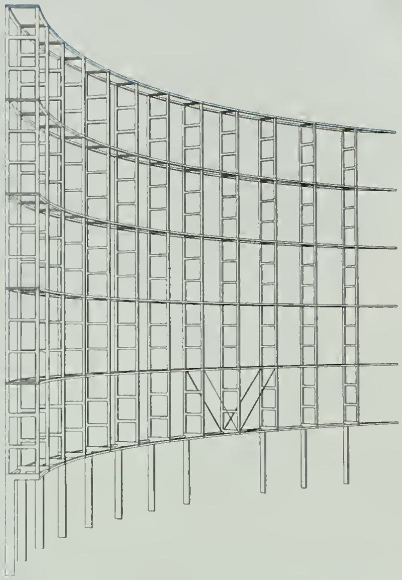
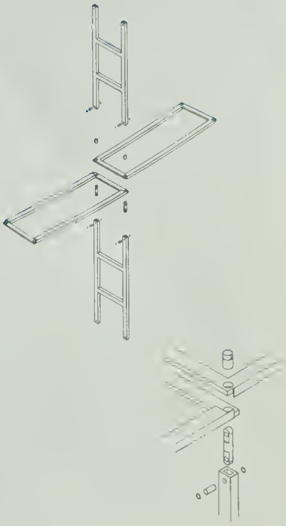
6 M.



FOURTH FLOOR







buildings in Roppongi Hills, Maki envisioned its roof as a "fifth facade" composed of abstract forms and greenery visible from surrounding towers. A hub of activity, the seventh floor contains a variety of employee amenities, including a cafeteria, medical clinic, and tatami-floored tearoom. By contrast, the eighth floor is a secluded world for top executives: a boardroom, offices, and areas for board members, interspersed with roof terraces, a garden, and a courtyard that frame views and forge a direct connection to the horizon and sky.

The architects developed TV Asahi's sculptural form in response to complicated site conditions. "We faced both small freedom and lots of constraints," says Maki. The building occupies a sloping site at the intersection of Keyakizaka Boulevard, a new boutique-lined artery that runs through Roppongi Hills, and an existing multilane thoroughfare where cars whip past day and night. Away from the streets, the building's great curving atrium faces the complex's traditional Japanese garden and the building's "Entrance Square."

The building's base showcases Maki's talent for integrating city and architecture, responding to the area's jumble of low-scale residential and commercial development. While many of Maki's earlier works blend internal and external spaces, TV Asahi engages the public with a colonnaded series of shops that step up the gently sloping south elevation, and with its grand, public atrium to the north. "We knew the upper part of Roppongi Hills would be filled with tremendous energy and a flood of people, so we wanted to make the atrium a quiet and contemplative place as a contrast," says Maki.

Both monumental and welcoming, the 90-foot-high, crescent-shaped atrium is more urban than architectural in scale. Like a building within a building, it has two facades: one interior composed of red stucco and pink marble and one exterior made of glass and steel. "I always use a mixture of two material palettes: one warm and one cool," explains Maki. The play between the two is largely what keeps this building looking alert around the clock. By night, the outer wall recedes and the inner wall, with its dazzling Sol Lewitt mural, takes center stage. But once the sun comes up, the roles reverse and the curving glass wall comes into focus.

A remarkably homogeneous glass-and-steel screen, the wall is one of the finest examples of Maki's integration of design, structural engineering, and craft. Reminiscent of traditional Japanese post-and-beam construction, a 396-foot-long Vierendeel truss—one of the largest in the world—holds the glass in place and diffuses the wall's weight over a wide field. A web of straight vertical bars suspended from cantilevered beams at the top of the sixth floor, curved horizontal pieces, and supporting members, the truss is held together by mechanical pin joints rigid enough to make it freestanding, but flexible enough to withstand earthquakes. Though assembled on-site, it took 16 different manufacturers from all over Japan to make the components—no small feat, since each piece could tolerate errors of only 0.008 inches (0.2 millimeters).

Complementing the truss's materials and visual texture, the building's other elevations—exterior-mounted panels that offer protection from the sun—are also made of glass and metal. Where daylight comes in at a low angle on the east and west, vertical fins plus a horizontal overhang provide shade; on the south side, deep, horizontal louvers cut the impact of the sun.

Surrounded by the urban cacophony of Tokyo and the high-voltage commercialism of Roppongi Hills, the TV Asahi building shows Fumihiko Maki at his best: combining technical innovation with formal elegance in a way that grabs attention without ever having to yell. ■

Sources

Aluminum honeycomb panel: *Sumikei-Nikkei Engineering*

Curtain wall: *Nihon Kentetsu; Sankyo Aluminum; Showa Koki; YKK; Tostem*

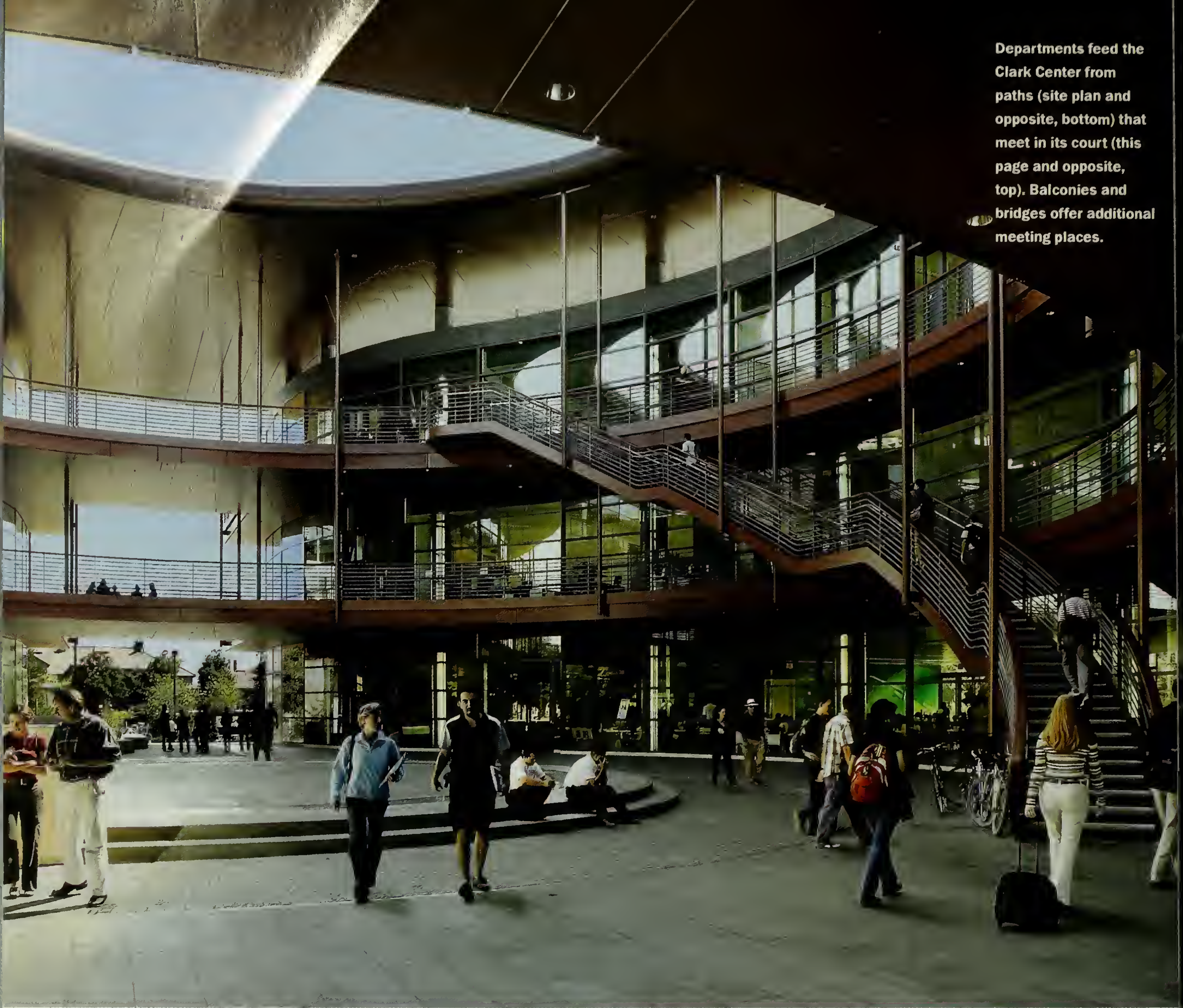
Metal roofing: *Yamaki Industry*

Glass: *Asahi Glass; Nihon Sheet Glass; Saint Gobain*

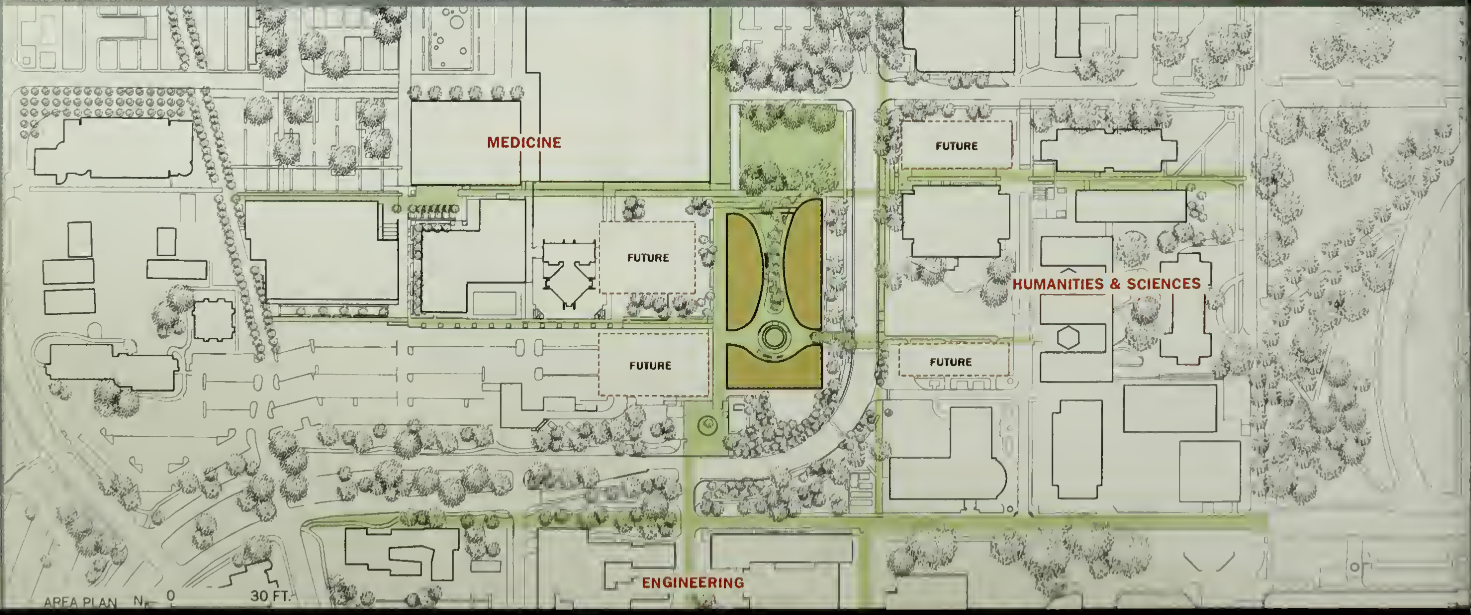
Movable partitions: *Okamura*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

A Sol Lewitt mural punctuates a lobby area off the atrium (opposite), while works by other contemporary artists animate outdoor spaces, such as a courtyard on the eighth floor (right) and a dining terrace on the seventh floor (below).

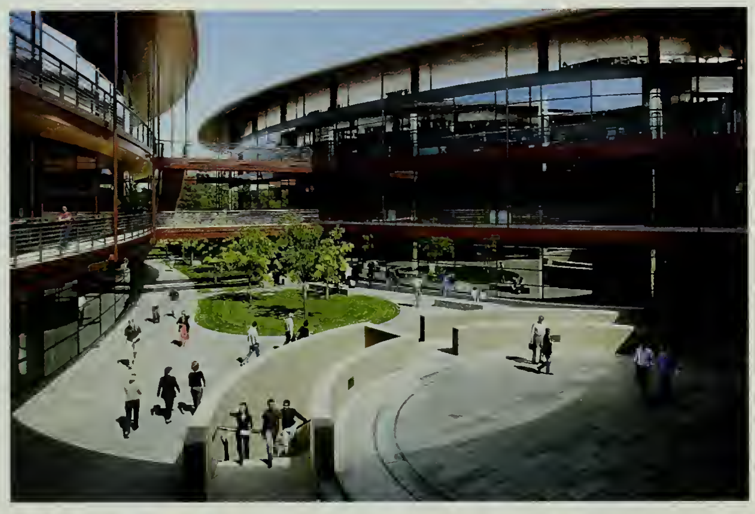


Departments feed the Clark Center from paths (site plan and opposite, bottom) that meet in its court (this page and opposite, top). Balconies and bridges offer additional meeting places.



In the **CLARK CENTER,** the task for **Foster and Partners** and **MBT** was no less than to redefine the way interdisciplinary research is done

By James S. Russell, AIA



DNA may have been sequenced and the human genome decoded, but turning these scientific advances into products and therapies people can use is today's great research challenge. Researchers themselves recognize that a linear approach within one's own discipline is no longer enough. "I'm a physicist, but most physicists don't look on what I do as physics," says Steven Chu, a member of a faculty group that spearheaded the formation of Stanford University's Bio-X program, adding, "I don't either."

As traditional disciplinary boundaries dissolve and information explodes, Chu and many of his colleagues began to feel a whole new way of working was needed. "We keep to ourselves, to the groups, the fields, and the students we know," he says, which is fine when the research path is clear. "When you *don't* know where you are going, in my experience, is when chance encounters are very important." Chu joined a team that won a Nobel Prize in 1997 because of a casual conversation. The Stanford faculty steering committee, of which Chu was a member, convinced the university to form Bio-X, comprising 23 scientific disciplines brought together from the Medical School, the School of Engineering, and the School of Humanities and Sciences.

"Interact here!"

Facilities intended to foster cross-disciplinary collaboration in the life sciences are in construction or on the boards at universities across the country. Stanford, however, may be unique in the degree to which architecture is used to make the chance encounters Chu and his colleagues envisaged actually happen. For the scientists involved, the great ideas hatched in a cafeteria at Bell Laboratories or at a famous dining hall atop a lab building at Oxford University had already taken on a mythic quality.

Creating opportunities for researchers to interact is hardly new in science buildings. And yet architects' best social intentions frequently go awry. "We have toured lots of labs, and you would often come across a corner of the building laid out with Italian furniture and what might as well have been a sign that said 'Interact here!' " said David Nelson, the partner in charge at Foster and Partners, one of the Clark Center's two architects. No one, it seemed, ever did.

Foster was brought into the project because the Medical School liked the firm's Center for Clinical Sciences Research (CCSR) at Stanford. It had created a pleasing social hub with simply a courtyard roofed by attractive sunshades. Its scientists enjoyed getting to know each other over a sandwich or a cup of coffee next to a lush stand of bamboo [RECORD, June 2001, page 130]. David Neuman, FAIA, Stanford's campus architect, united Foster with MBT, a firm with laboratory expertise that had enjoyed success with the Engineering School.

A single criterion ruled the selection of the site: "To pull people together," says Neuman. The location selected offered an ideal proximity to the schools feeding the project (site plan, opposite). Setting the build-

Project: *James H. Clark Center, Palo Alto, California*
Owner: *Stanford University*
Architects: *Foster and Partners—Norman Foster, David Nelson, Nigel Dancy, Chris West, Ross Palmer; MBT Architecture—H. Russell Drinker, AIA, Tully Shelley III, AIA, Seth Meisler, AIA, Karen Cribbins-Kuklin, Stan Vistica, Cord Struckmann, Harriet Chang*
Consultants: *Middlebrook & Louie (structural engineer); Alpha Tech (plumbing and mechanical)*
Construction manager: *Hathaway Dinwiddie*

ing at a crossroads caused Foster to reverse the normal lab layout in which a core of technology-intensive functions is surrounded by dry labs and offices at the exterior. Instead, Nelson's team hollowed out the center, devoting it to a shaded courtyard surmounting an auditorium. They carved gaps in the sides to draw in existing pedestrian paths. "It was sited so you would go through, not around," explains Chu.

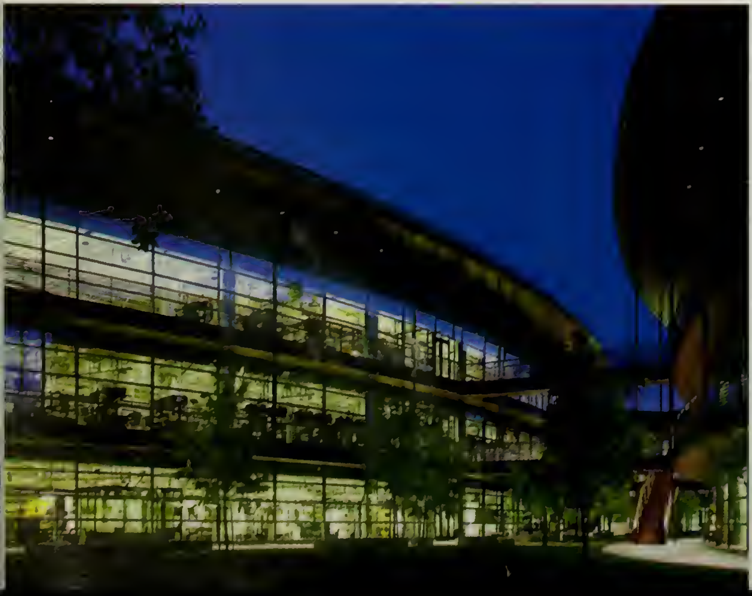
A lab layout game board

In the meantime, MBT worked closely to identify the needs of research teams. "We knew what the disciplines would be, but we did not know who would go into the building when we were designing," says Tully Shelley, AIA, MBT principal in charge. The MBT team did know they were dealing with diverse research cultures, with needs ranging from traditional wet-bench sinks and fume hoods to accommodations for specialized equipment—some of it in open labs and some in special rooms requiring close control of access, temperature, light, noise, contamination, and vibration. MBT looked for common ground among the disciplines as they tabulated equipment and linear feet of benches.

The architects invited researchers to a series of workshops, for which they had prepared little cardboard models of furniture and equipment. They urged scientists to arrange them to suit the work they intended to do, on boards printed with a schematic floor plan. The scientists began to realize that a bench needn't be in one part of a building, separated from a desk or from a specialized piece of equipment. "They discovered the immediacy of performing one operation, writing it up right there, then going on to the next piece of equipment," says Nelson. "That was the breakthrough."

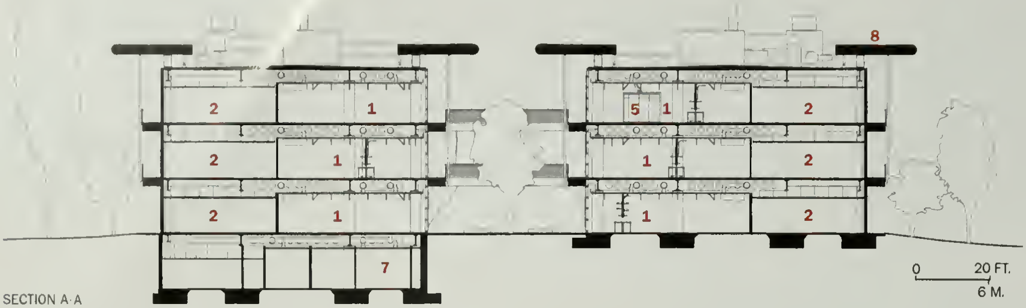
Out of these exercises emerged a new lab-layout concept. The architects placed enclosed spaces that would require specialized light and environmental conditions (many of which could be shared by teams from different disciplines) against one exterior wall. As the plan developed, the enclosed labs were accessed with corridors opening to daylight, interlaced with cores containing shafts, exit stairs, and bathrooms. The rest of the floor would be open, like a loft, permitting research teams to arrange their areas freely and change them easily. The open floor would also make each team's work visible. Everyone hopes that scientific investigators will frequently ask each other "how did you do that?" In this way, Chu explains, "you trade technologies and dreams."

The building section echoes the loft notion. Building utilities run through gaps in the massive steel sections of the 4-foot-deep floors above a fixed acoustic ceiling (page 98). Water, medical gasses, power, and



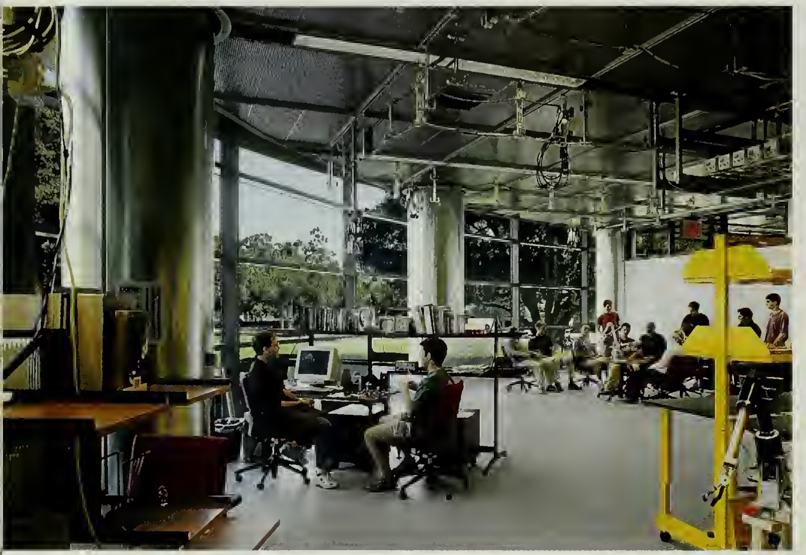
PHOTOGRAPHY: © NIGEL YOUNG (LEFT); ROBERT CANFIELD (RIGHT SPREAD)

The extensive glass (protected by a horizontal roof projection) brings light deep into the loftlike labs. The glazing also intentionally exposes work to passersby. Neatness does not count.

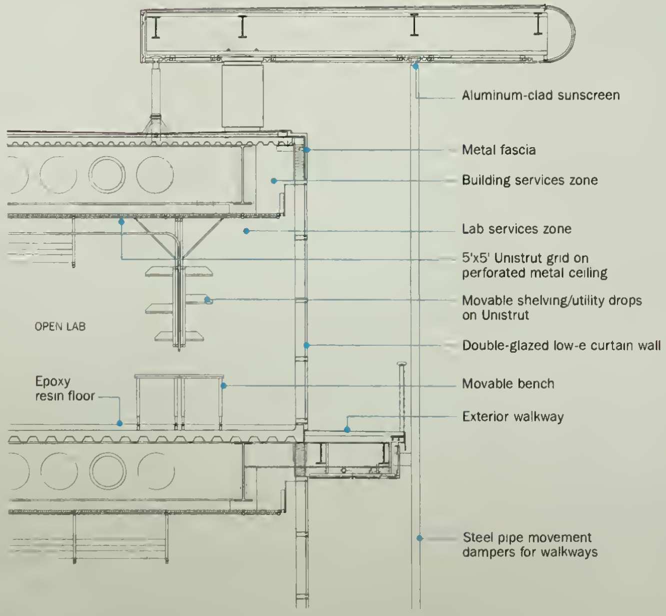


SECTION A·A

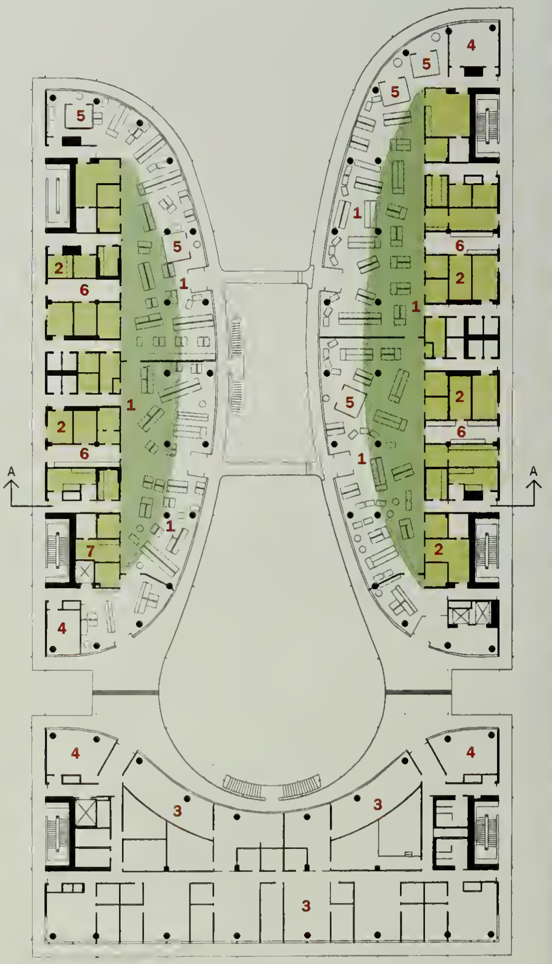
1. *Open lab*
2. *Enclosed lab*
3. *Computer science*
4. *Meeting*
5. *Demountable office*
6. *View/exit corridor*
7. *Laser lab*



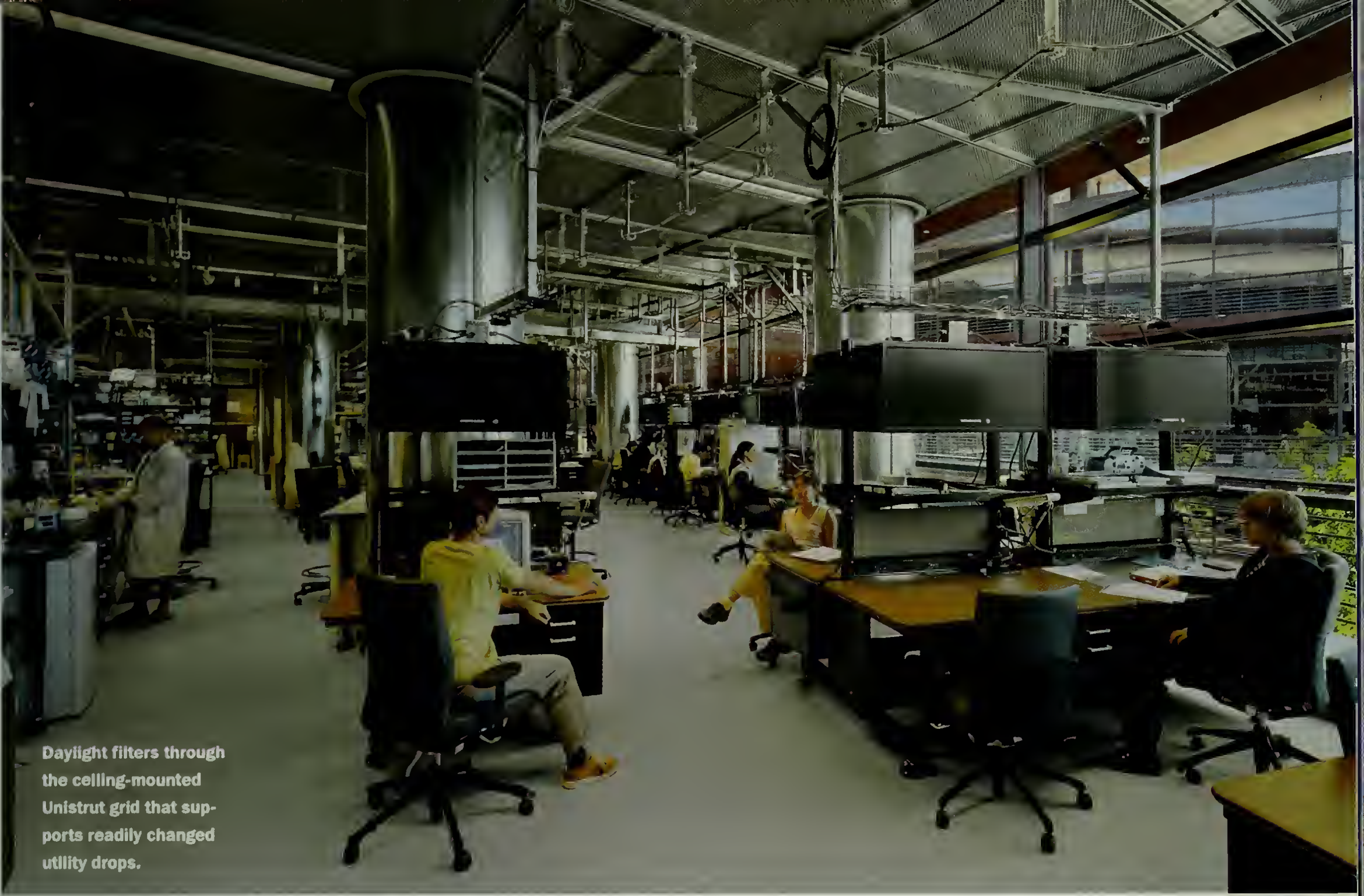
Standard benches, tables, and other fixtures have been customized so that they can be mixed to suit the task at hand.


Aluminum-clad sunscreen
Metal fascia
Building services zone
Lab services zone
5'x5' Unistrut grid on perforated metal ceiling
Movable shelving/utility drops on Unistrut
OPEN LAB
Double-glazed low-e curtain wall
Epoxy resin floor
Movable bench
Exterior walkway
Steel pipe movement dampers for walkways

SECTION AT LAB



SECOND FLOOR


Daylight filters through the ceiling-mounted Unistrut grid that supports readily changed utility drops.

telecommunications intended for use by investigators run under the fixed ceiling along with a Unistrut grid that supports utility drops.

"The rawness of all this is part of how it 'says' it can be changed," comments Nelson. The benches, tables, shelves, and other components are based on standard fixtures but have been customized to be easily mixed. Casters were added to ease change, but special restraints were included because of the area's high seismic risk. Demountable offices with translucent glazing give privacy to principal investigators.

"When you stop for coffee, you don't switch off"

There is little about the building that does not in some way serve the informal-collaboration agenda. It was cheaper to use open exterior balconies, stairs, and bridges for circulation, but they are also more appealing places to stop and chat. To emulate the eateries that had inspired so many collaborations elsewhere, an attractive food-service area was built into the ground floor. It includes refectory-style seating to invite conversations. "Just sitting next to someone who doesn't do what you do forces you to describe what's on your mind," observes Chu. "And you learn about what they want to do." A coffee shop has opened on the third floor. "When you stop for a coffee, you don't actually switch off," explains Nelson. "What you were doing is still in your head even if you are talking to someone else in just a social way."

It was clear on a recent visit that the research teams have taken to heart the idea of arranging their own space. The tidiness visible in the early photographs accompanying this article has already vanished. Webs of pipes, cables, and Unistrut already hang in nearly impenetrable thickets from the ceiling above bubbling flasks and humming equipment. Yellow-painted benches contrast with the prevailing black ones to denote teams housed in the center short-term. Some teams align their benches for easy access to enclosed labs; others place them at 90 degrees to keep a daylight vista open or for easy observation of a fume hood. While some people seem to enjoy the daylight pouring in through the floor-to-ceiling glass, others obscure the windows to avoid the distractions of passersby.

The Clark Center culture doesn't work for everyone. Indeed, some desirable teams preferred to stick with their departments. Bio-X does not supplant the departments, it "stretches them," according to Neuman, because the careers of investigators and postgraduate researchers are still defined by their disciplines even though they spend much of their time working outside them. "We're concerned for junior faculty, because they need ties to their field's senior people," says Chu.

"This was a great opportunity to explore the idea of how people sensibly relate to each other," says Nelson. "Great places usually evolve over a long period. The challenge today is to make a great place that works instantly. It's tremendously difficult." The scramble to build versions of Bio-X elsewhere, however, suggests just how high the rewards may be. ■

Sources

Curtain wall and metal cladding: *Polhl USA*

Glazing: *Viracon (exterior); Firelite (rated interior)*

Stone cladding: *Rocamat France*

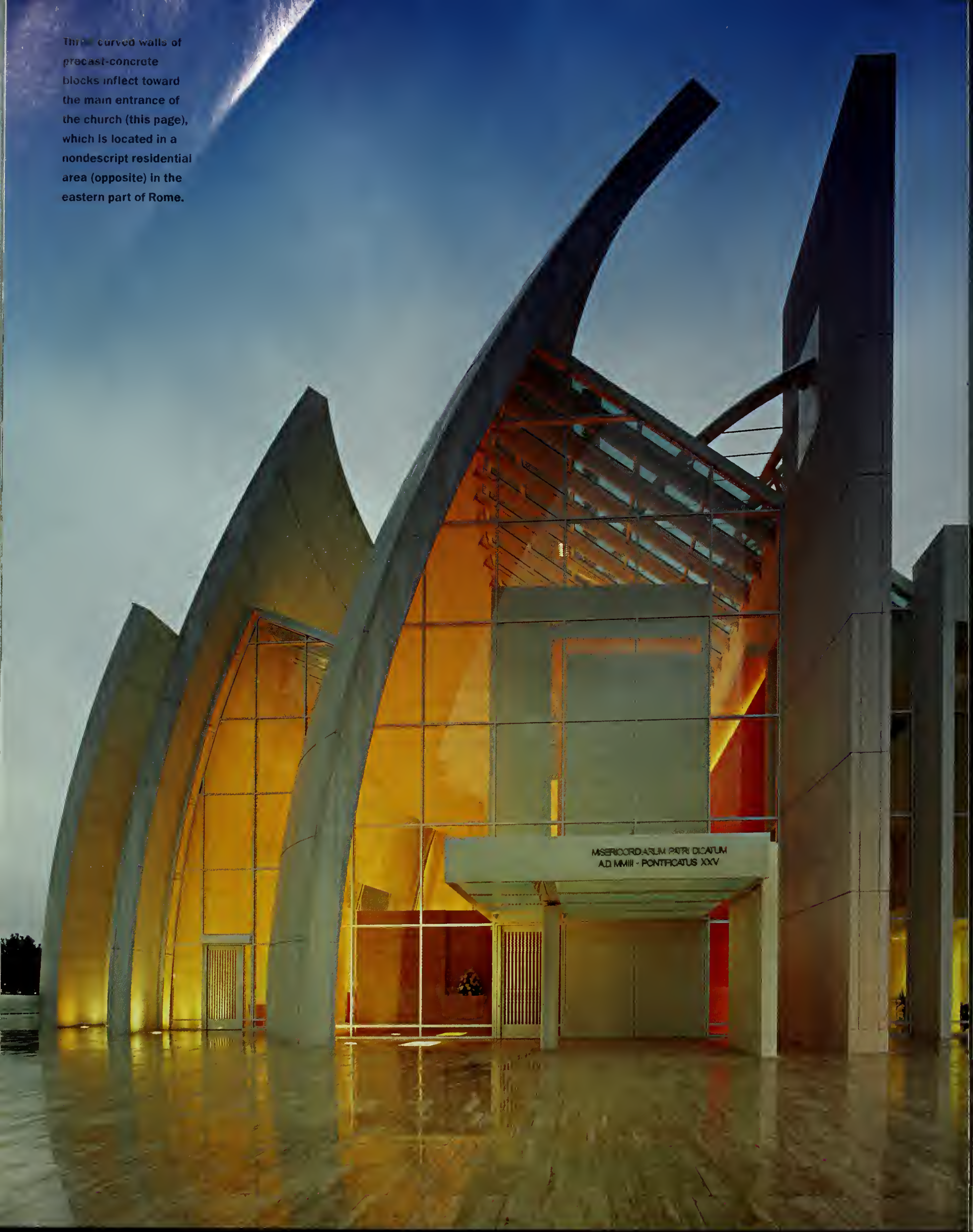
Seismic joints: *C/S Group*

Ceiling panels: *Armstrong (lab support, acoustical); Unistrut (open lab perforated metal)*

Lab casework/furnishings: *Fisher Hamilton/ISEC; Werndl; Steelcase*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

Three curved walls of precast-concrete blocks inflect toward the main entrance of the church (this page), which is located in a nondescript residential area (opposite) in the eastern part of Rome.



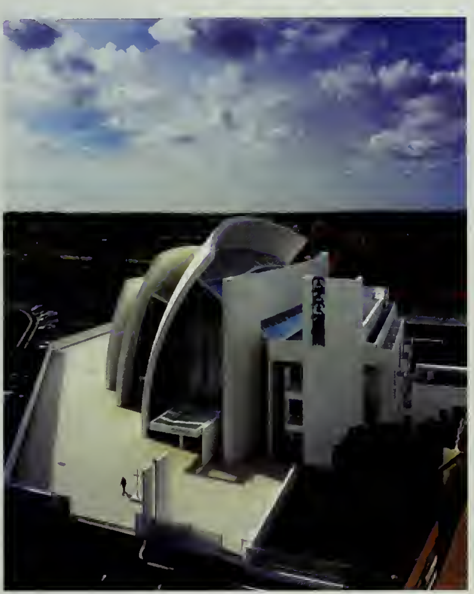
Richard **Meier** achieves a Baroque sense of space and light with concrete construction in the **JUBILEE CHURCH** in Rome, Italy

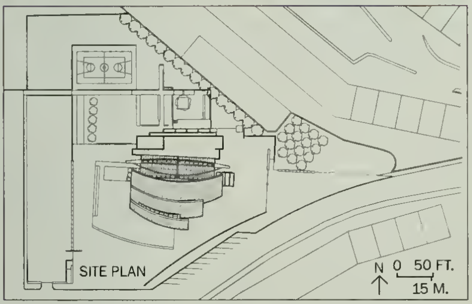
By Peter Popham

There is nothing new in the Roman Catholic Church in Italy commissioning a radically Modern design for a new church: The country is littered with such efforts, which, though architecturally modest, are evidence of postwar Catholicism's determination to stake a place in the contemporary world. Critics of the church designed by Richard Meier, FAIA, which opened last October in a suburb of Rome, have complained that it lacks many traditional attributes of a church—a pulpit, for example, or an altar rail, or any spatial distinction between nave and sanctuary. You might even say it makes little reference to traditional cruciform or basilica models. Yet in this abandonment of many hundreds of years of architectural prototypes, Meier is treading in the footsteps of lesser-known postwar Italian architects.

The novelty in this case—and the source of the project's triumph—is that the church intentionally commissioned a Modern design from a Modern master. When the list of architects invited to compete to create a church for the soulless outer Roman suburb of Tor Tre Teste was announced, the ambition was clear: Besides Meier, such top Modern architects as Tadao Ando, Gunter Behnisch, Santiago Calatrava, Peter Eisenman, and Frank Gehry were being considered. That ambition was in evidence again when Meier's design was selected and the architect was instructed to carry it through exactly as presented in the competition proposal. As Meier remarked, "An architect cannot ask for more support than that." Five years in construction, the new Dio Padre in Misericordioso (also called Dives in Misericordia) Church was inaugurated in October 2003. For the wait, the Diocese of Rome has got itself a stunning work, with a form of heroic simplicity that succeeds in harmonizing a number of disparate attributes and requirements.

Peter Popham is author of Tokyo: The City at the End of the World *(1985) and is the Rome correspondent for* The Independent *of London.*





With its three parallel curving walls constructed from 346 off-white blocks of posttensioned, precast concrete, which rise from 57 to 88 feet above the nave, the church is a dramatic and defining presence amid the suburb's large, nondescript apartment buildings. Yet its scale is so finely considered that it appears neither arrogantly grandiose nor sadly subservient to its surroundings.

Likewise, it is an awe-inspiring building to approach, yet the interior, flooded by top light from the enormous sloping skylights, is not dauntingly huge. At a mass on a recent Sunday morning, 80-odd worshippers made it feel like a true parish church, comfortably occupied. And thanks to those skylights, bathing the congregation uniformly in daylight, and given the ambivalent character of those high, almost toppling walls (exterior and interior at the same time), the effect is almost like worshipping out of doors.

The walls, the decisive element in the design, work in several different ways. Spatially they divide inside from outside with the simplest strokes, and with equal simplicity they separate the church from the side chapel. The soaring lines of the three walls powerfully suggest the verticality of a Gothic cathedral; the staggered, square openings in the two internal walls also evoke the traditional hierarchy of the walls of a Gothic nave. The Catholic Church sees in the three walls a symbol of the Holy Trinity, though Meier denies that was his specific intention.

Project: *Jubilee Church (Dio Padre Misericordioso, or Dives in Misericordia), Rome, Italy*
Architect: *Richard Meier & Partners—Richard Meier, FAIA, principal; John Eisler, Alfonso D'Onofrio, Matteo Pericoli, design team; Nigel Ryan, representative in Rome*
Engineers: *Arup; Guy Nordenson and Associates (structural and m/e/p, design phase); Studio Tecnico Dottore Ingegnere Luigi Dell' Aquila (m/e/p, construction phase); Italcementi Gruppo (structural, construction phase)*
Lighting: *Fisher Marantz & Stone*

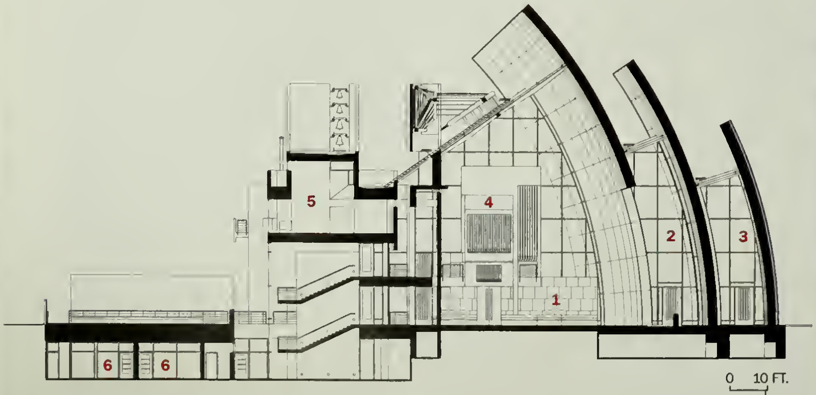
These walls have been described in the architectural press as "sails," like those of Jorn Utzon's Sydney Opera House. Meier says, "They're very different from the Sydney Opera House in that these shells are cantilevered from the ground and are not part of a continuous structure. It's a totally different idea in terms of the structural system and the way in which they enclose space."

All three are perfect segments of circles with the same radius, so that worshippers find themselves at the core of a geometrical impossibility: three huge, virtual, intersecting spheres of the same size. Meanwhile, the secular community center on the north side is a rigidly rectilinear concrete frame structure. As Meier has described the project, "The circle is used to represent perfection, the dome of the heavens. The square represents the earth, the four elements and the rational intellect." And inside the church, the sense of being embraced by the divine is no mere academic conceit. Once one has got over the feeling of being at the frozen moment of a cataclysmic earthquake—how did they get these incredible walls to stand up?—there is a palpable sense of being under the protection, under the great wings, of a very mighty force.

A few minor issues detract from what is in important respects a thunderously successful project. The large, travertine-clad piazza to the south of the church feels featureless and dead, bounded by a 6-foot-high fence that prevents the community having easy connection to the church precinct, especially since the building is only open for a few hours every day. The architect's intention to fill a broad, shallow pool in this space with water, which would have yielded extraordinary reflections of the walls, has so far been ignored by the church authorities.

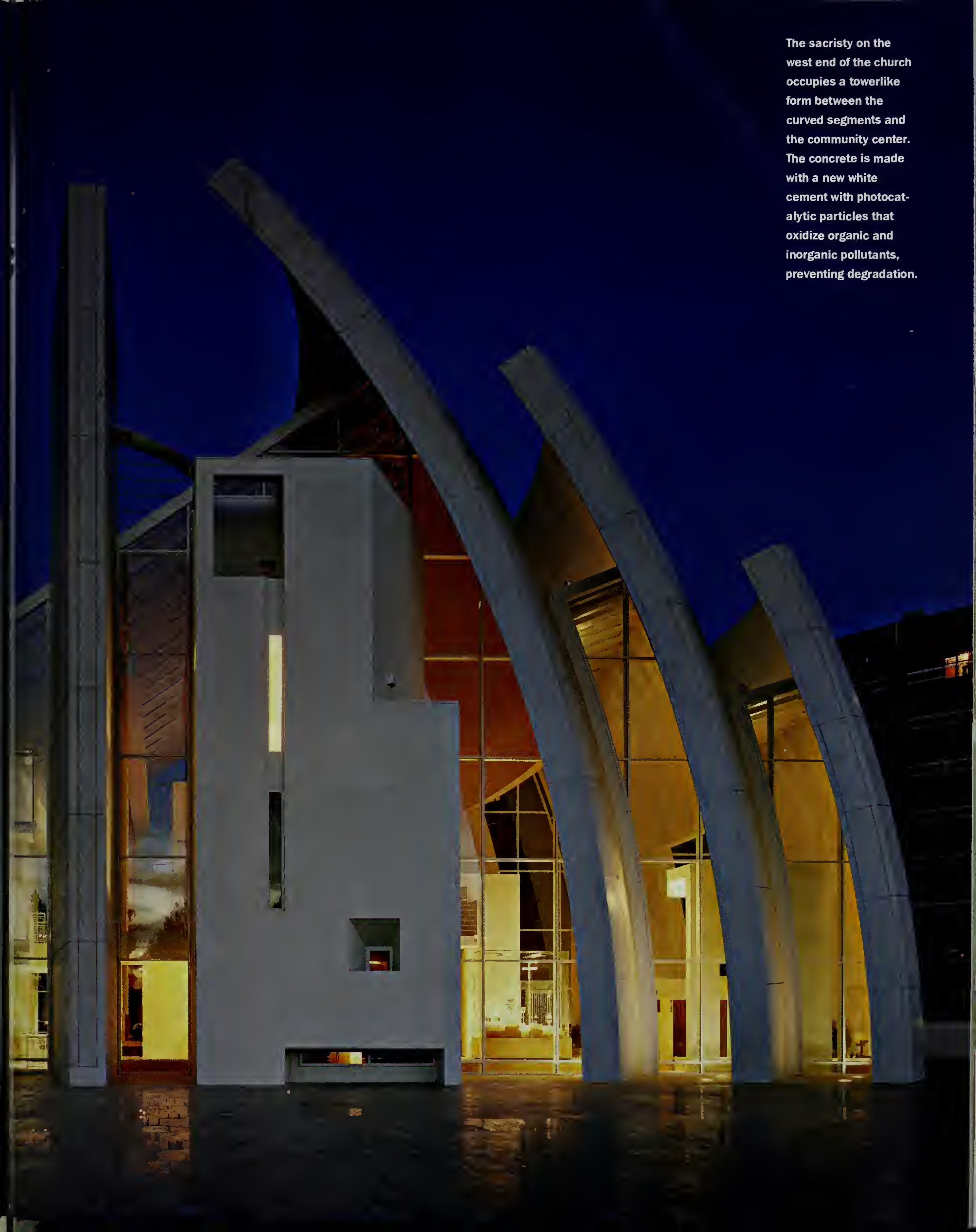
But the most glaring failing in the way the church functions is in the quality of sound. Great care, Meier says, was taken to give the church perfect acoustic properties, obviating the need for microphones and loudspeakers. But the parish went ahead and installed sound equipment anyway—perhaps as a gesture to modernity—with the result that in such an intimate space the voices of priests and readers sound as if they are coming out of a cheap radio. "We've had some problems since many things that we specified were changed, and substituted with gifts," Meier commented. "And one of the gifts was the sound system."

Meier is believed to be the first Jewish architect in history com-



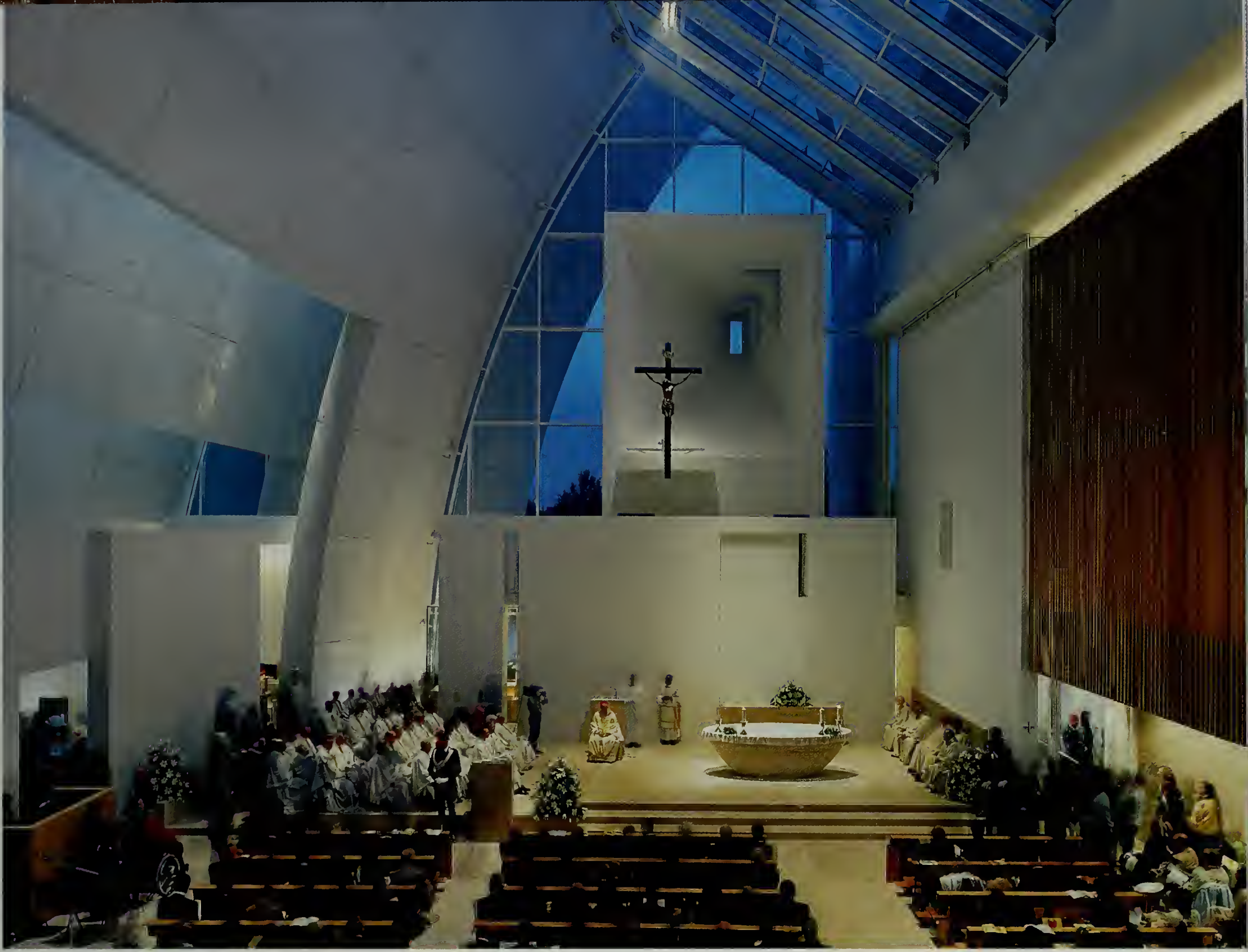
NORTH-SOUTH SECTION

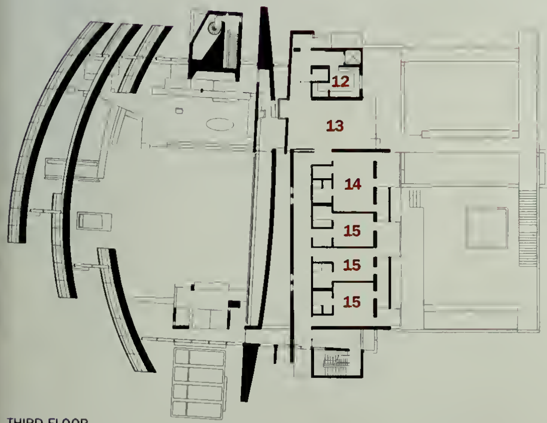
1. *Nave*
2. *Baptistery*
3. *Chapel*
4. *Organ loft*
5. *Priest's apartment*
6. *Meeting room*



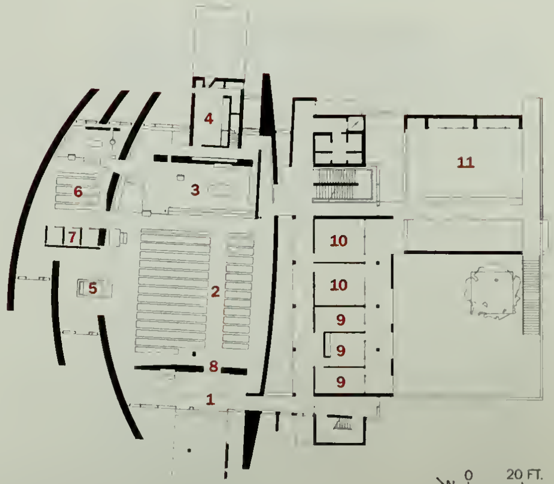
The sacristy on the west end of the church occupies a towerlike form between the curved segments and the community center. The concrete is made with a new white cement with photocatalytic particles that oxidize organic and inorganic pollutants, preventing degradation.

The 346 posttensioned, precast-concrete blocks, 30 inches thick, were made with a single stainless-steel form, adjustable on the ends only. The vertically cantilevered curved shells (above and right), with heights of 57 to 88 feet, were erected with a rolling gantry crane. This complex engineering resulted in a sanctuary of high spatial drama (opposite).



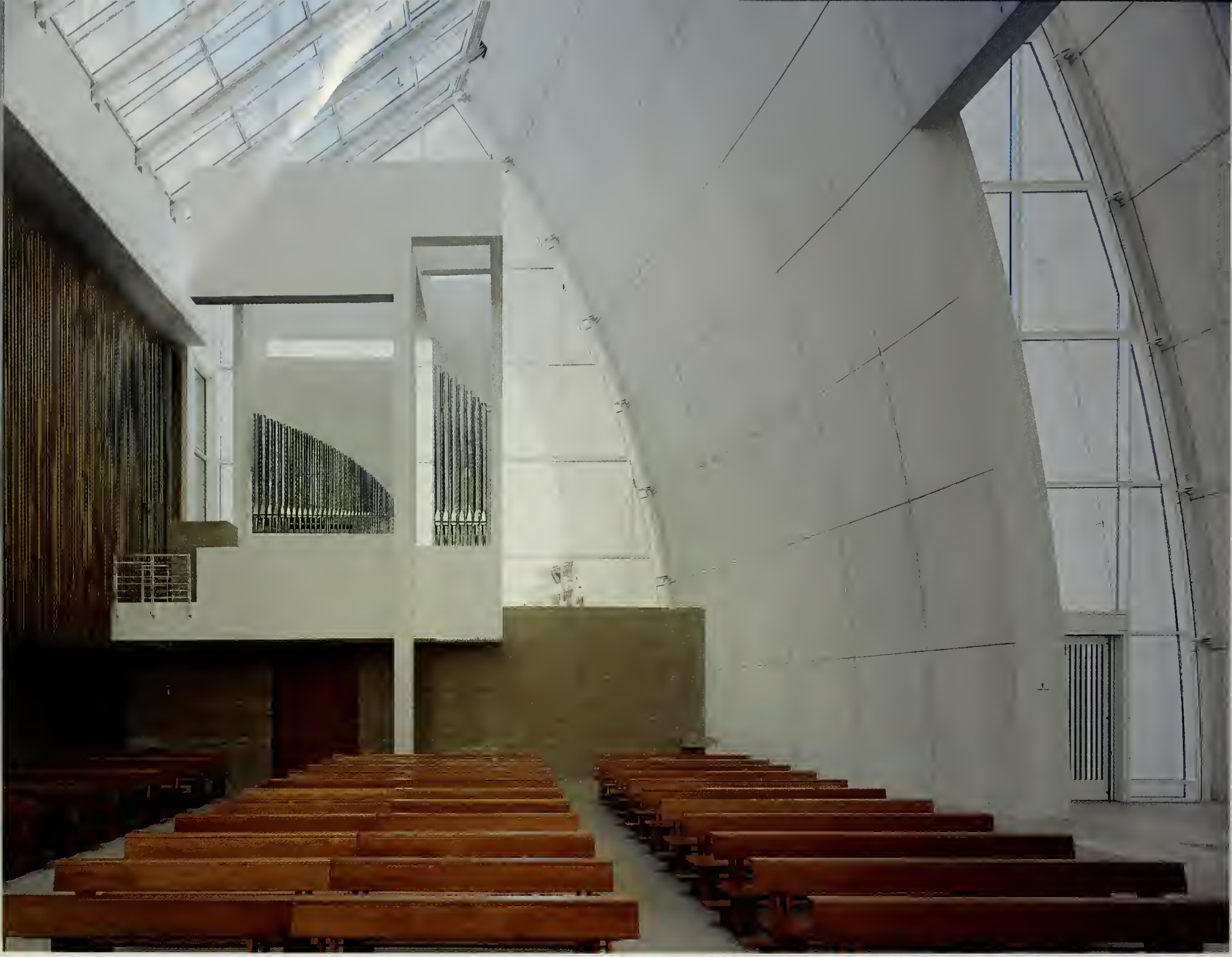


THIRD FLOOR



GROUND FLOOR

1. *Entrance*
2. *Nave*
3. *Altar*
4. *Sacristy*
5. *Baptistery*
6. *Chapel*
7. *Confessionals*
8. *Organ loft (above door)*
9. *Office*
10. *Catechism room*
11. *Garden*
12. *Priest's kitchen*
13. *Living/dining*
14. *Priest's bedroom*
15. *Bedroom*



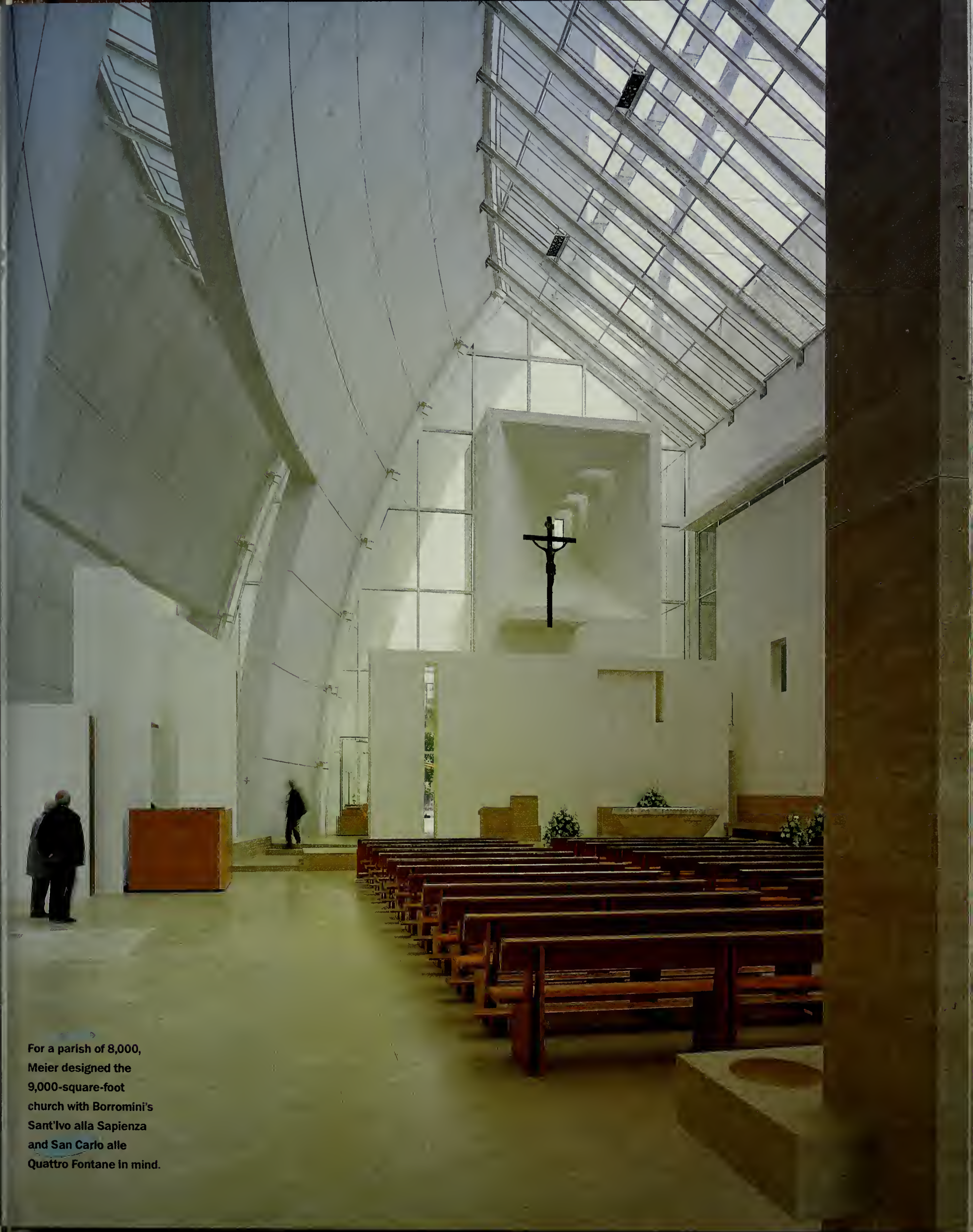
The natural light entering the skylights around the organ loft on the east (above) and at the entrance (right) bounces off Tivoli travertine marble floors and walls. The shells of precast concrete are made with an aggregate of Carrara marble.

missioned to design a Catholic church—and this in the pontificate of a pope who has worked hard for reconciliation between Christian and Jewish faiths. "I consider it a great honor to have been chosen," Meier said. "It was an important responsibility in terms of the Church and its history with the Jewish people, as a kind of sign of reconciliation."

Now work is under way on Meier's second project in Rome, a museum close to the east bank of the Tiber containing the Ara Pacis (Altar of Peace), consecrated in 9 B.C. to mark Emperor Augustus's military victories in the Gallic and Spanish campaigns. It is the first new building to be erected in the city's heart in 70 years—and another first for Meier. ■

Sources
Stone (travertine): *Carlo Mariotti & Figli*
Curtain wall and skylight: *Schüco International*
Glass: *Pilkington*
Lighting: *Erco*
Stucco: *MAPEI*
Door hardware: *Fusital for Valli and Valli*
Church pews: *Caloi Industria*

For more information on this project, including construction details, go to Projects at **www.architecturalrecord.com**.



For a parish of 8,000, Meier designed the 9,000-square-foot church with Borromini's Sant'Ivo alla Sapienza and San Carlo alle Quattro Fontane in mind.

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ADAPTIVE REUSE

Keystones

IN THREE FAR-FLUNG LOCALES, PLANNERS ENLISTED ARCHITECTS FOR CIVIC PROJECTS THAT BALANCED PRESERVATION, RENOVATION, AND NEW CONSTRUCTION—ALL WITH HAPPY RESULTS.

1.

Madrid

Mansilla + Tuñón Arquitectos anchors a growing cultural district with an archive and library where the public can browse historic documents.

2.

Bath, England

Grimshaw's sleek, orthogonal Bath Spa rises above the streetscape, allowing rooftop bathers spectacular vistas of this World Heritage locale.

3.

Minneapolis

The crumbling masonry of an old flour mill fronts Meyer, Scherer & Rockcastle's new Mill City Museum that chronicles the area's history.

For more information on these projects, go to Projects at **www.architecturalrecord.com**.

By Deborah Snoonian, P.E.

Many adaptive-reuse projects cross our desks, and they represent such a polyglot of programs, scales, and aesthetic approaches that it can be challenging to find a common thread among them. For this month's building types study, however, a tale of three cities emerged. Each faced a familiar conundrum: how to resuscitate historic structures that had outlived their original function, yet were still viable—and desirable—places. What sets these projects apart is both design and civic import. Unlike, say, a neighborhood row-house-turned-restaurant, or even a warehouse-loft conversion, each was planned and paid for (at least in part) with public funds as a catalyst for renewal and growth. Programmatically, each one is linked to its location's heritage, and aesthetically, each seems poised to become a symbol of its host's identity.

First, take Madrid. In the southern part of the city, a 1912 brewery complex stood as an emblem of the area's industrial heritage, but the beermaking had ceased long ago, and surrounding areas had been converted largely to residential use. Planners recognized the complex as a possible springboard for the growth of a nascent cultural district and commissioned a public archive and library for Madrid's historic documents, which had never been accessible to residents. Mansilla + Tuñón's ambitious minicampus of more than 400,000 square feet, which occupies a full city block, is now paving the way for new investments in the area.

Then to Bath, England, where in the 1st century the Romans tapped into the mineral springs under the city to build its first public spa. Two millennia later, its Georgian bath houses in disrepair, Bath city officials and private investors chose Nicholas Grimshaw's firm to restore two of the older baths and build a new one. Though not a large building, the striking cube-and-tube monolith of the new spa carries enormous symbolic significance for a city renewing its reputation as a spa resort.

Back home in Minneapolis, the erstwhile seat of the nation's flour-milling industry, a fire that destroyed the Washburn A Mill in 1991 catalyzed a waterfront redevelopment effort already afoot. The site of the old mill is now the Mill City Museum, by Meyer, Scherer & Rockcastle, whose completion marks a milestone in the redevelopment, which includes loft residences by Minneapolis architect Julie Snow and Jean Nouvel's Guthrie Theater.

These three firms found different ways to blend existing structures with new buildings; each solution works for its own reasons. As notable examples of adaptive reuse, and as civic destinations, we believe these projects will live as long in the imagination as in the service of their communities. ■

Regional Archive and Library
Madrid

1

MANSILLA + TUÑÓN ARQUITECTOS WRAPS NEW STRUCTURES AROUND OLD TO CREATE A CITY BLOCK WITH AN ENLIGHTENED CIVIC PURPOSE.

By David Cohn

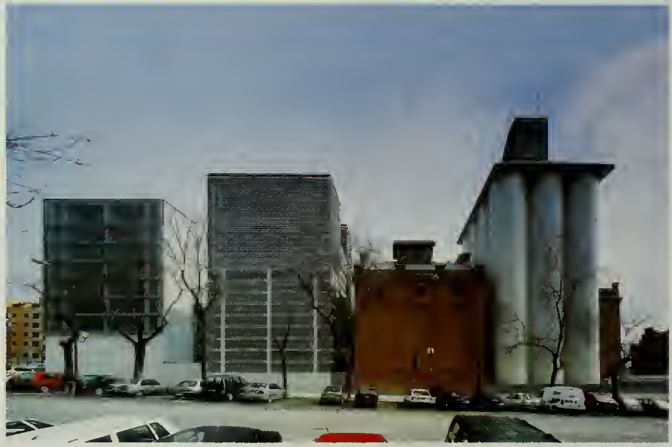
Architect: *Mansilla + Tuñón Arquitectos—Luis Mansilla, Emilio Tuñón, principals in charge; Ainoa Prats, construction administration; Oscar Fernández-Aguayo, furniture and equipment manager; Matilde Peralta, Jaime Gimeno, Andrés Regueiro, Fernando García-Pino, María Linares, David Nadal, Robert Reiniger, project team*
Client: *Madrid Regional Government*
Engineers: *J.G. Asociados; Alfonso Gómez Gaite*
Consultants: *O.C.L. (structural); Patrick Artiga (structural system)*
Contractor: *Dragados Obras y Proyectos*

Size: *430,500 square feet*
Cost: *$75.3 million*
Completion date: *April 2002*

Sources
Brick facade restoration: *Artemón*
White concrete: *Hormigones Jarama*
Skylights, U-glass: *Alferglas*
Glazing: *Vitral*
Zinc roofing: *Cubranor*
Brise-soleils: *Entorno*
Windows: *La Navarra (wood); Gravent (glass)*
Doors: *Dacin (entrance); La Navarra (wood, sliding); Tecsesa (metal, fire control)*
Ceilings and partitions: *La Navarra*
Task lighting: *Louis Poulsen*

For more information on this project, go to Projects at **www.architecturalrecord.com.**

The abundance of historic architecture in Spain, including monasteries, churches, palaces, fortifications, barracks, and hospitals, and the need to adapt these works for new uses, has promoted an approach to preservation in which contemporary elements or additions are grafted onto to historic structures with great freedom. Well-known examples include Enric Sòria and Jordi Garcés's adaptation of a string of Gothic palaces for Barcelona's Picasso Museum, or Rafael Moneo's restructuring of a Neoclassical palace for the Thyssen-Bornemisza Museum in Madrid. For Spain's more recent industrial heritage, the case for a hearty mix of old and new is even stronger, as can be seen in Luis Mansilla and Emilio Tuñón's conversion of the former Águila Brewery into the Regional Archive and Library of Madrid.



Program

The Águila Brewery occupies a full block in Arganzuela, a former industrial district in the south of Madrid largely converted to residential use. The compound's existing structures ranged from the original buildings of 1914, finished in a high-relief ornamental brick, to additions dating from the 1960s and '70s. Mansilla and Tuñón won a competition in 1994 to convert the factory into an ambitious macrocultural center for Madrid's regional government; the program was later scaled back to house the region's main library and repository for its official documents.

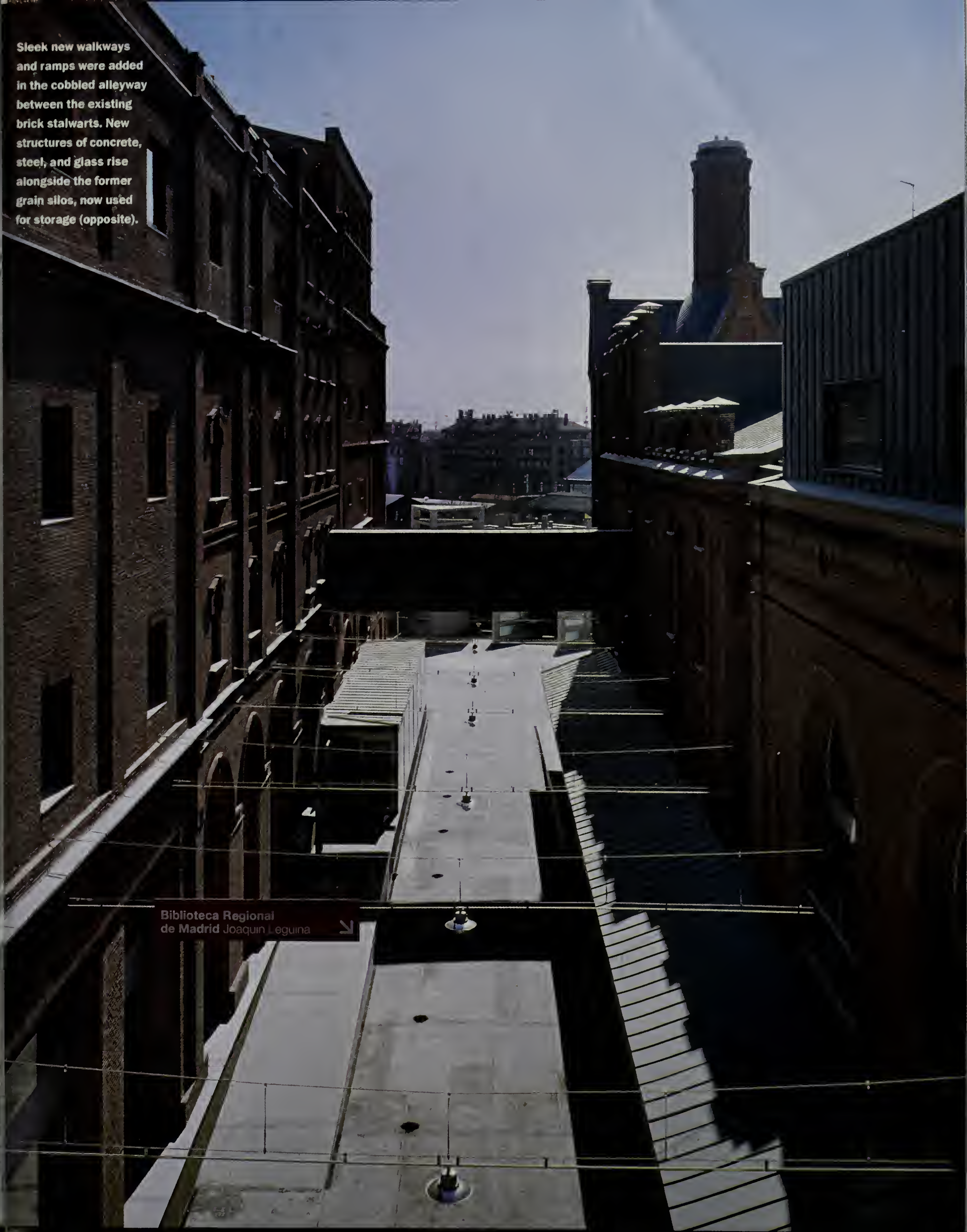
Solution

Mansilla and Tuñón located the public reading rooms of the two institutions in the two major structures dating from 1914, located in the center of the block, and arranged book stacks, the archives, and other services in new and existing structures around them, ringing the block's perimeter. They thus maintained the factory compound's original spatial organization, with its cobbled interior alleys and entry court. Buildings dating from the 1960s on the northern and eastern perimeters were demolished to make way for new structures adequate to the technical requirements of the archival handling areas, while a string of old and new ancillary structures serves as the new library, including former grain silos converted into book stacks, and a new office volume.

Throughout the project, the architects work with a palette of materials that maintains and updates the rugged aesthetic of the original compound. The new buildings are enclosed in a thick double-glass wall, with conventional wood-framed windows on the inside and an unsealed exterior sheathing of floor-to-floor panels of translucent glass. These U-glass panels transmit a diffuse, frosted luminosity similar to that of plastic fluorescent light diffusers, an effect enhanced by the structure's night lighting. Exposed concrete floor slabs and custom cast-aluminum ventilation grilles, as well as interior floors,

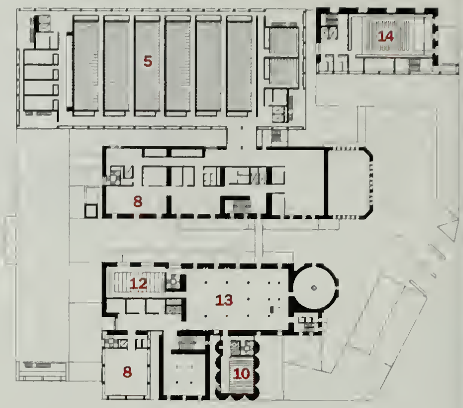
David Cohn is a RECORD *contributing editor based in Spain.*

Sleek new walkways and ramps were added in the cobbled alleyway between the existing brick stalwarts. New structures of concrete, steel, and glass rise alongside the former grain silos, now used for storage (opposite).

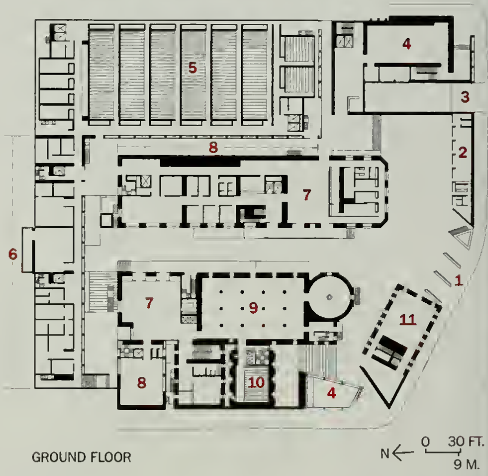


Plans

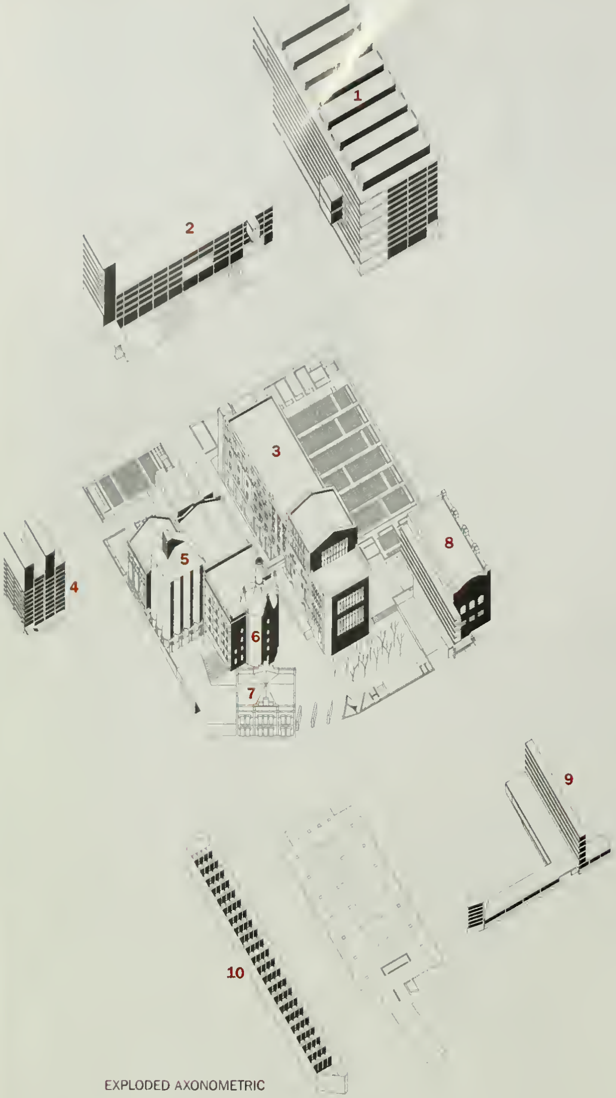
1. *Main entry*
2. *Bar/café*
3. *Parking access*
4. *Exhibition hall*
5. *Document storage*
6. *Document restoration*
7. *Main hall*
8. *Offices*
9. *Library reading area*
10. *Book storage*
11. *Legal book repository*
12. *Electronic media storage*
13. *Electronic library/reading area*
14. *Auditorium*



THIRD FLOOR



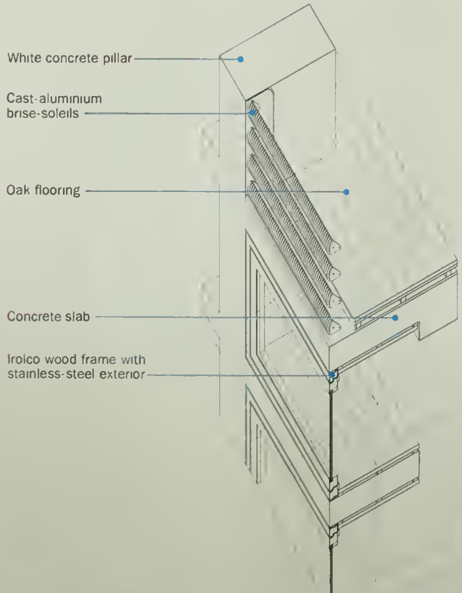
GROUND FLOOR



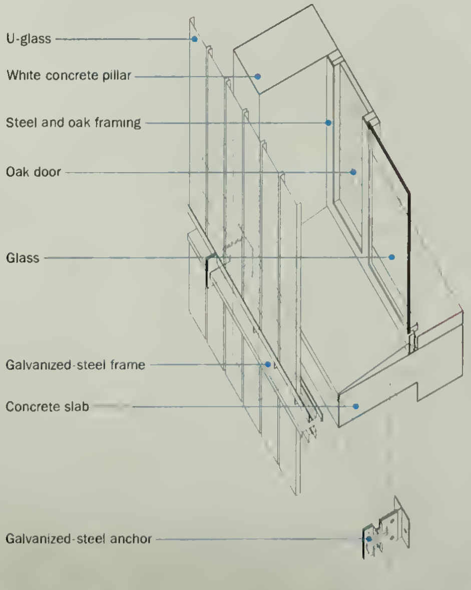
EXPLODED AXONOMETRIC

Axonometric

1. *Archive repository*
2. *Workshop and admissions*
3. *Offices, reading rooms*
4. *Book processing*
5. *Book storage*
6. *Library reading rooms*
7. *Legal book repository*
8. *Exhibition hall*
9. *Circulation, exhibition space*
10. *Storage*


White concrete pillar
Cast-aluminium brise-soleils
Oak flooring
Concrete slab
Iroico wood frame with stainless-steel exterior

WINDOWS/SLATS FACADE



U-GLASS FACADE

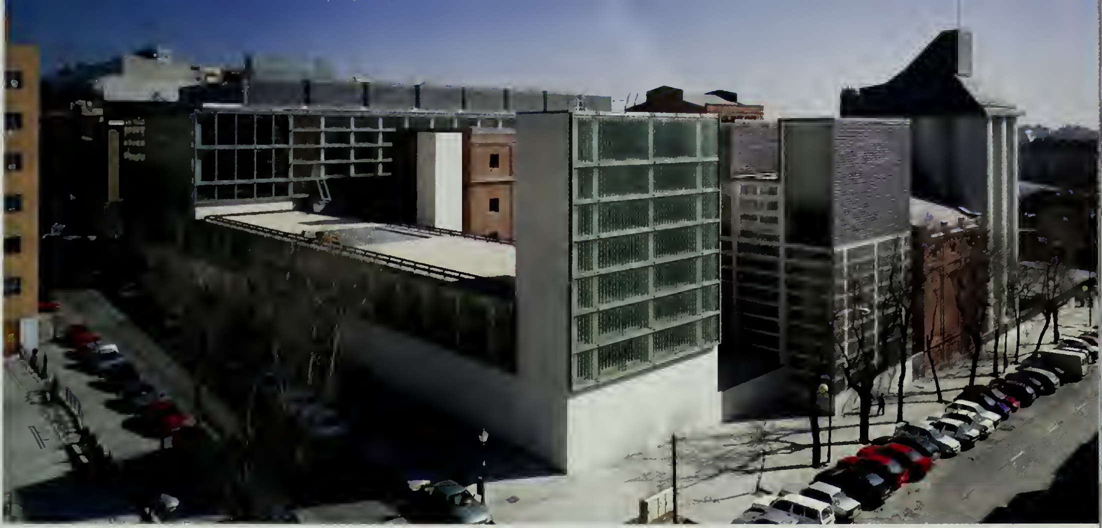
door panels, and other surfaces of untreated oak from controlled-harvest forests, complete the palette.

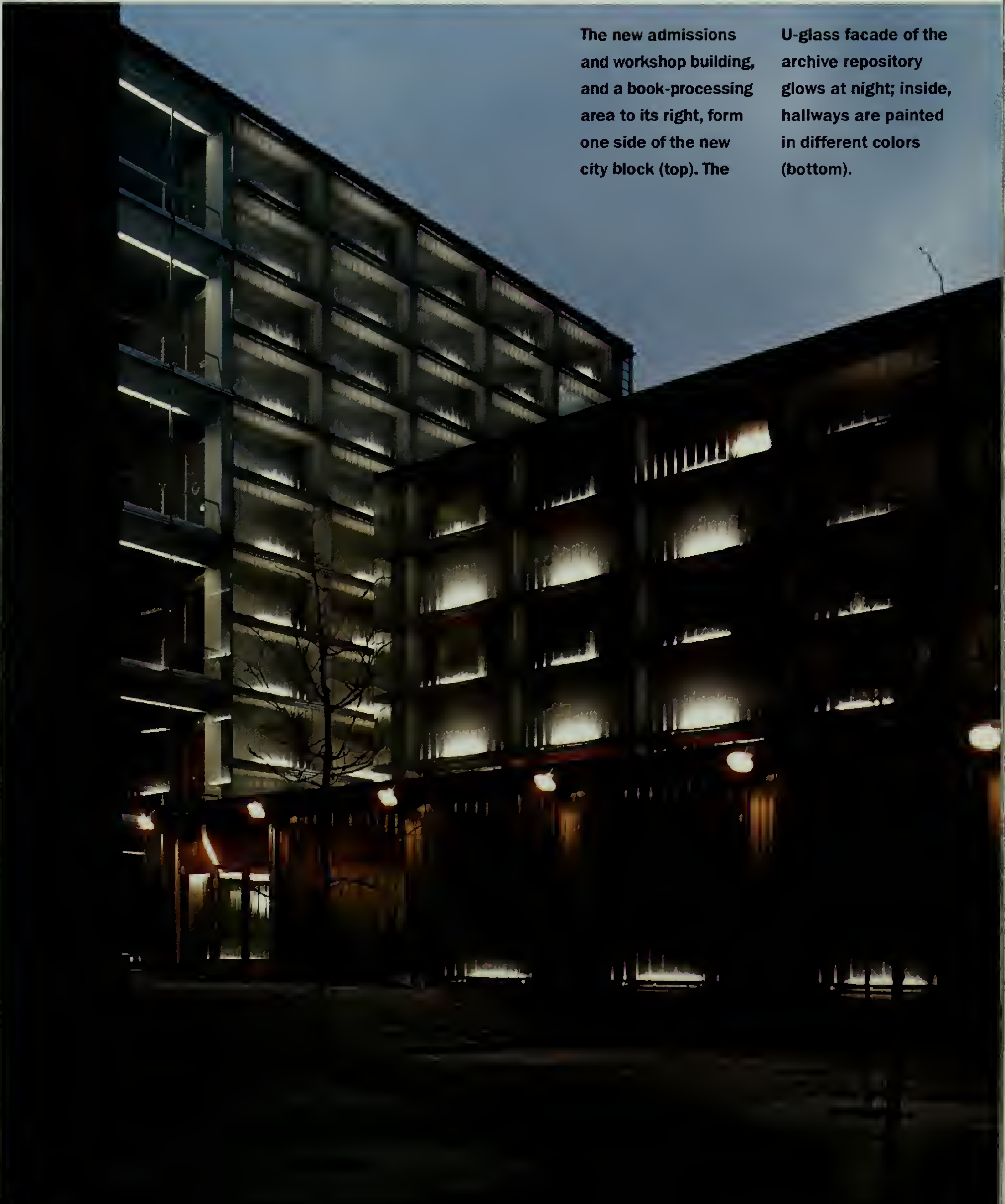
The library reading rooms fill the brewery's old mash house, with its round brick oven and tall chimney. The soaring entry atrium at the opposite end of the structure occupies the high space where a "freezer" for drying barley was once located; its interior walls are also finished in U-glass panels, a clever inside-outside reversal that gives the atrium the feel of an outdoor plaza. The reading rooms are notable for the elegant fireproofing enclosures of their original cast-iron columns, whose undulating wood planes were inspired by Brancusi's sculpture *Endless Column*. The archive reading room occupies another former "freezer" area in the adjacent brewery, with exterior walls of open brick latticework that the architects enclosed in wood-framed glass.

Working with engineers from Arup, Mansilla and Tuñón developed energy-saving measures that were new in Spain at the time of the competition. Features include an underground "air lake" for tempering incoming air, gray-water recycling, highly insulated double-glazed walls, and a recycling program for demolition debris; the original 1914 buildings were restored with recycled brick from the site.

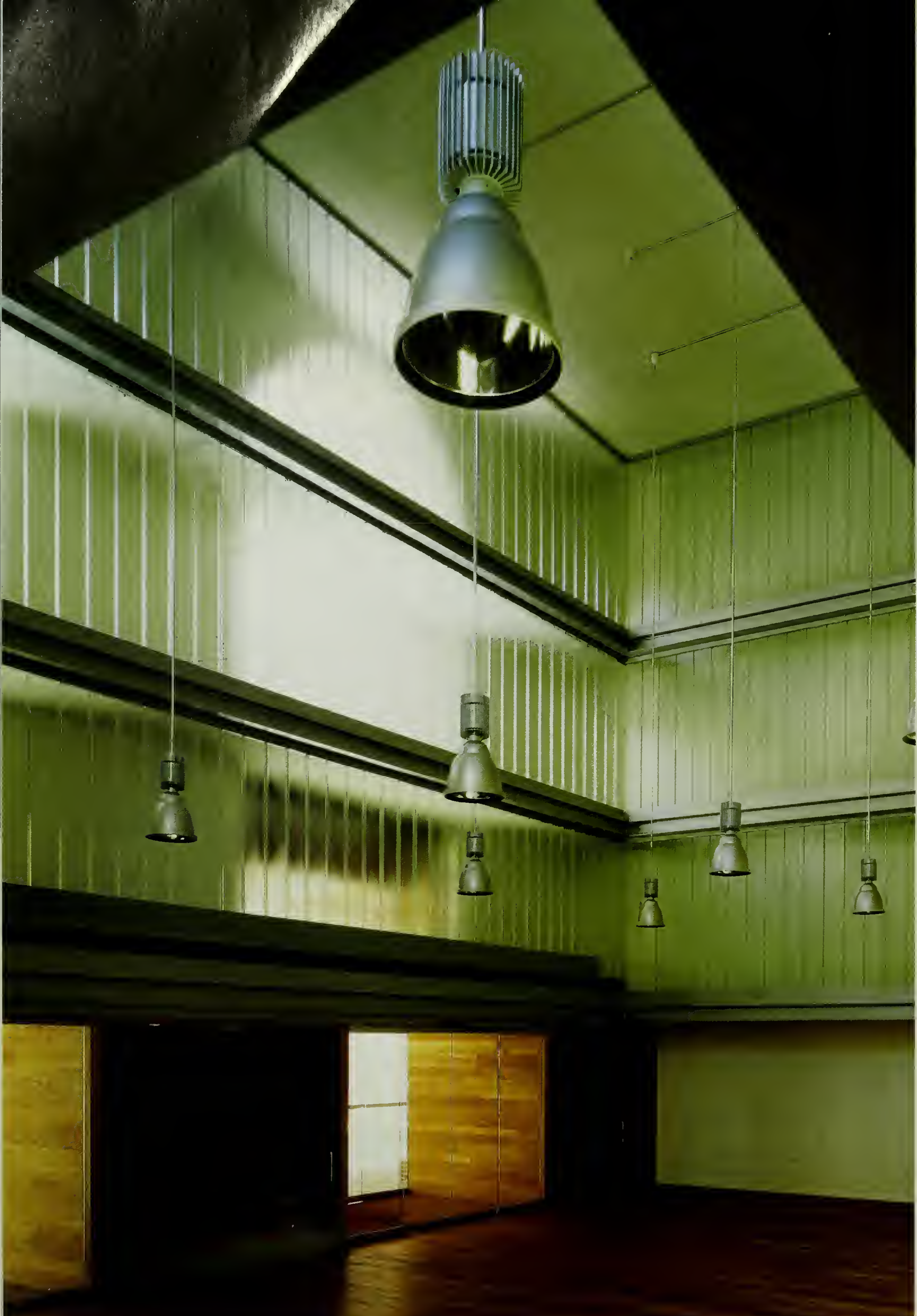
Commentary

In addition to its environmental responsibility and the sensuous honesty of its finishes, Mansilla and Tuñón's design carries out an important representative role, weaving together old and new structures to express the democratic values the center embodies. Mansilla explains, "The brick buildings transmit a sense of the stability and seriousness of the institution, while the new glass facades talk about its transparency. It's a place that guarantees the democratization of information. The official documents kept here are at the service of the people, something that is still a new idea in Spain." ■





The new admissions and workshop building, and a book-processing area to its right, form one side of the new city block (top). The U-glass facade of the archive repository glows at night; inside, hallways are painted in different colors (bottom).



The library's lobby (left) is a three-story volume ringed with the same U-glass used on the exterior of the buildings.

Staircases and circulation for the archives are organized to provide views into the complex's courtyard (top). The old malthouse, its hoppers still present, is now a reading room for the library (near right). Robust wood columns, inspired by Brancusi's *Endless Column*, mark space in an archive research area (far right).

Bath Spa
Bath, England

2

GRIMSHAW GRACES THE GEORGIAN LANDSCAPE OF THIS WORLD-HERITAGE CITY WITH A WORLD-CLASS MODERN WORK OF LIMESTONE AND GLASS.

By Hugh Pearman

Architect: *Grimshaw—Andrew Whalley, director in charge; Mark Middleton, associate director; David Pryce, project architect; Chris Butler, Simon Dickens, Graeme Dix, Florian Eames, Miriam Fitzpatrick, Nicholas Grimshaw, Neill McClements, Leonard Milford, Diane Murdoch, Benny O'Looney, Jerry Tate, project team*

Conservation architect: *Donald Insall Associates*

Client: *Bath & North East Somerset Council and Thermae Development*

Engineers: *Arup (structural, services); Thermelek Engineering Services (water treatment)*

Consultants: *Speirs & Major Associates (lighting); Arup (energy, facade); Dr. G. Kellaway (hydrogeology)*

General contractor: *Mowlems (Ernest Ireland)*

Subcontractors: *Skanska (services); MAG Hansen (glazing); Bath Stone Group (stone)*

Size: *39,300 square feet*

Cost: *Withheld*

Completion date: *August 2003*

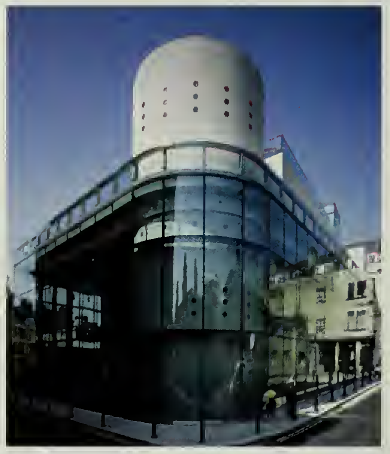
Sources

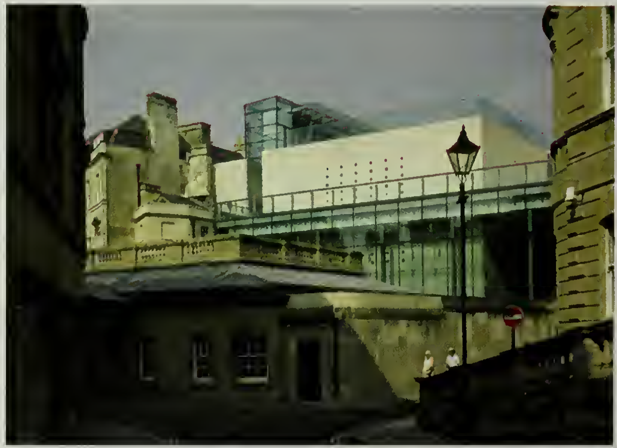
Glazed partitions: *Prospec*

Metalwork: *McGrath Group*

Interior stone: *Bröls Natuursteen*

For more information on this project, go to Projects at **www.architecturalrecord.com**.





The city of Bath, 115 miles west of London, derives its identity from the hot mineral springs where groundwater bubbles to the surface at a temperature of 115 degrees Fahrenheit. The springs were long venerated by ancient Britons, and were discovered in turn by invading Romans in A.D. 43. The Romans were quick to exploit the potential of this riverside site surrounded by steep wooded hills, establishing the great public bath that is still to be found here. The city took on much of its present homogeneous form, however, over a short period in the 18th century when Bath became a fashionable spa resort, largely designed by architects John Wood the elder and younger. But the Georgian baths from that era had fallen into disuse by the end of the 20th century. By 1997, city leaders—ever cognizant of Bath's status as a UNESCO World Heritage Site—were considering radical new approaches to revive the spas.

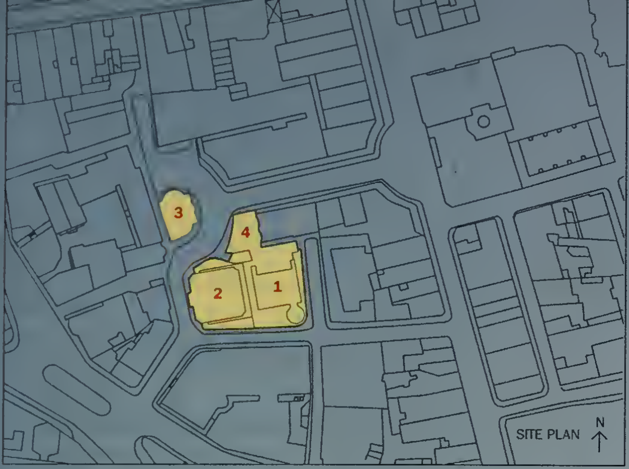
Hugh Pearman is architecture critic of The Sunday Times *of London and author of* Contemporary World Architecture *(Phaidon Press).*

Program

Grimshaw won an invited competition to build a new spa building as part of a larger project involving the restoration of the adjacent 1775 Hot Bath by Wood the younger, and the exquisite 1790 Cross Bath by Thomas Baldwin, both at the city's center. To exploit the hot mineral springs, the new site had to be very close to these existing buildings. Construction was made possible by the demolition of the 1927 Beau Street swimming pool, an unused building of little merit. The aim of the project was nothing less than to reestablish Bath as a leading center for spa activities—sybaritic bathing, body conditioning, and aquatherapy—for the first time in more than 25 years. As a remarkably ambitious project of national importance, it was funded in part by the British government's Millennium Commission.

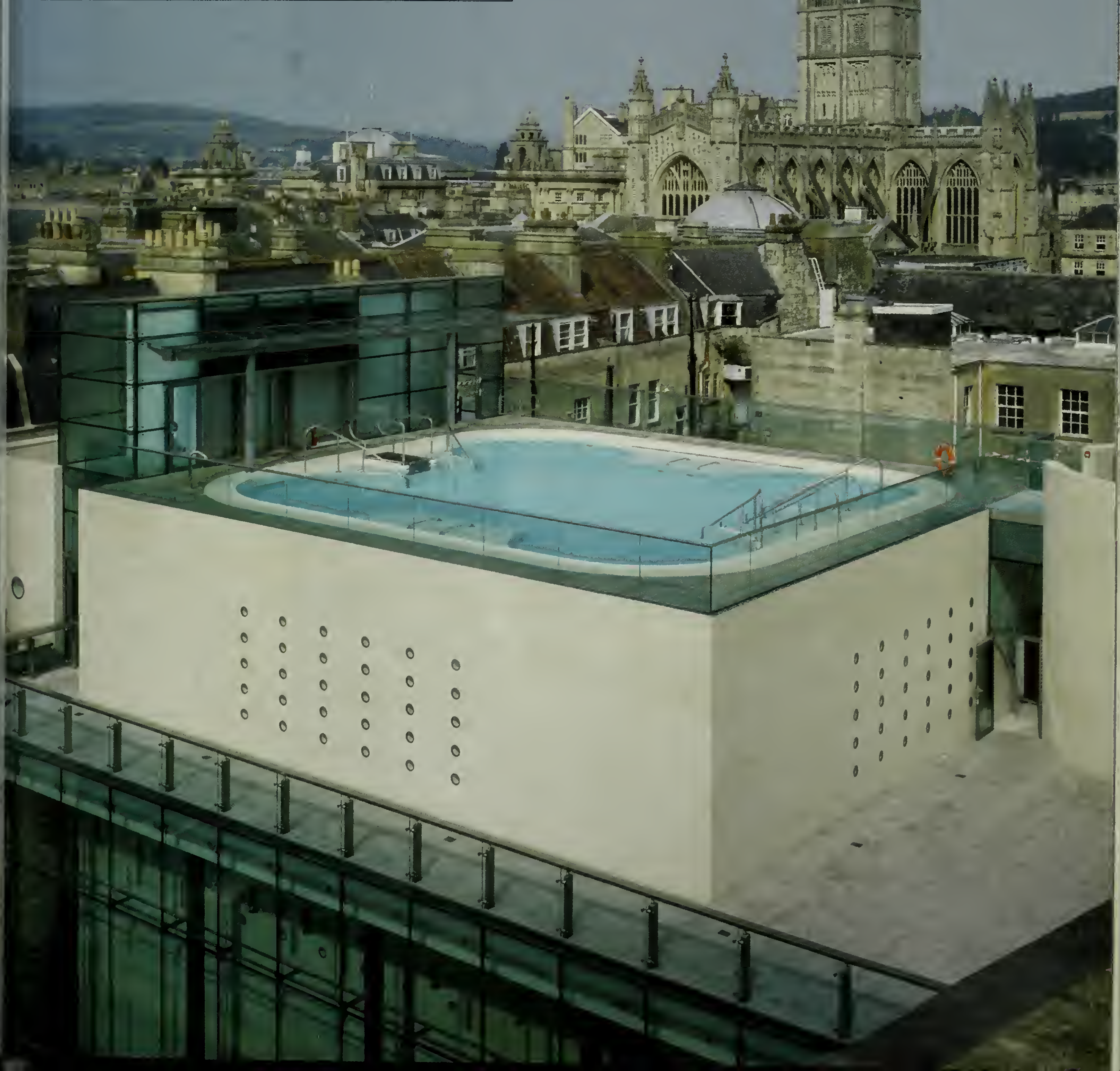
Solution

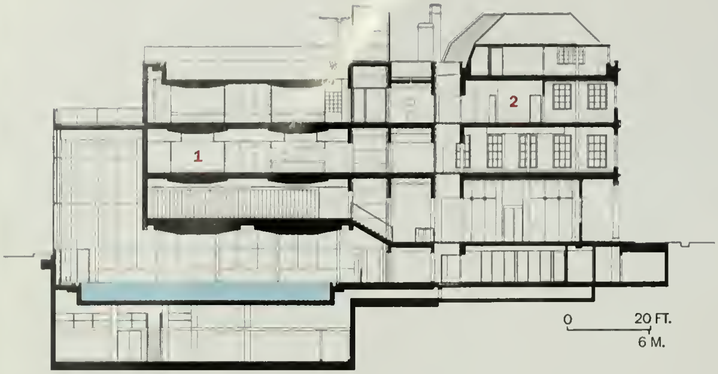
Sir Nicholas Grimshaw took Wood's Hot Bath as his initial planning diagram for the new building. He worked with conservation architects Donald Insall Associates on the restoration and upgrading of the Georgian buildings, adding some classic Grimshaw touches, such as a new fully glazed roof to the Hot Bath, a cantilevered canopy to the Cross Bath, and a fully glazed entrance to the entire complex, made in a corner of a Baldwin



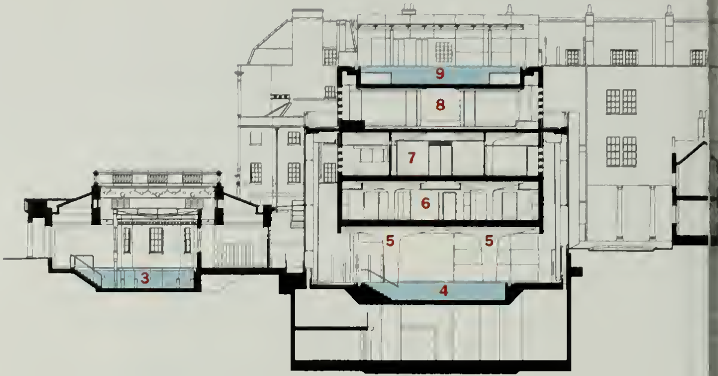
1. *Bath Spa*
2. *Hot Bath*
3. *Cross Bath*
4. *7/7A/8 Bath Street*

The Bath Spa, topped by an open-air pool, rises high above its neighbors (this page). The cylinder houses stairs and services; a glass skin wraps the building at its lowest levels (opposite, left and right).





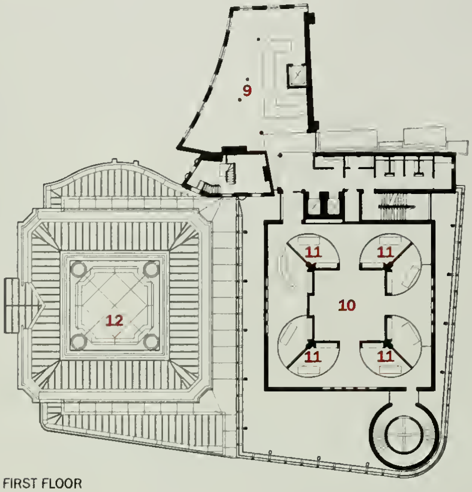
SECTION A-A



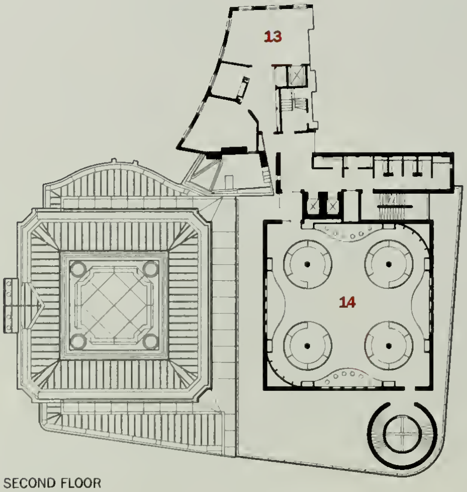
SECTION B-B

1. *New Bath Spa*
2. *7/7A/8 Bath Street*
3. *Hot Bath*
4. *Main spa pool*
5. *Mushroom columns*
6. *Changing rooms*
7. *Gymnasium/treatment rooms*
8. *Steam rooms*
9. *Rooftop pool*

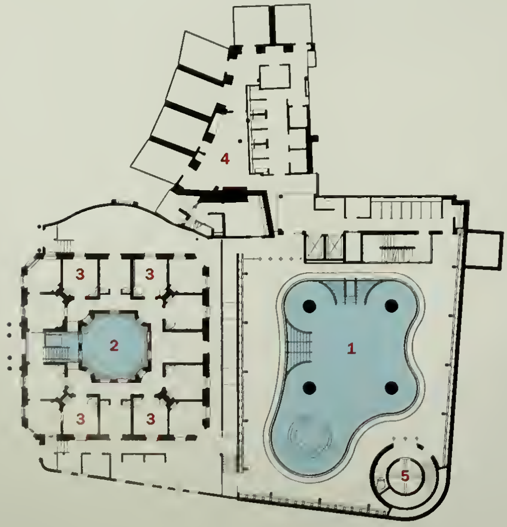
1. *Main spa pool*
2. *Hot Bath*
3. *Treatment rooms*
4. *Staff area*
5. *Service tower*
6. *Entrance/reception*
7. *Gift shop*
8. *Changing rooms*
9. *Restaurant*
10. *Gymnasium*
11. *Massage rooms*
12. *New glazed roof*
13. *Offices*
14. *Steam rooms*



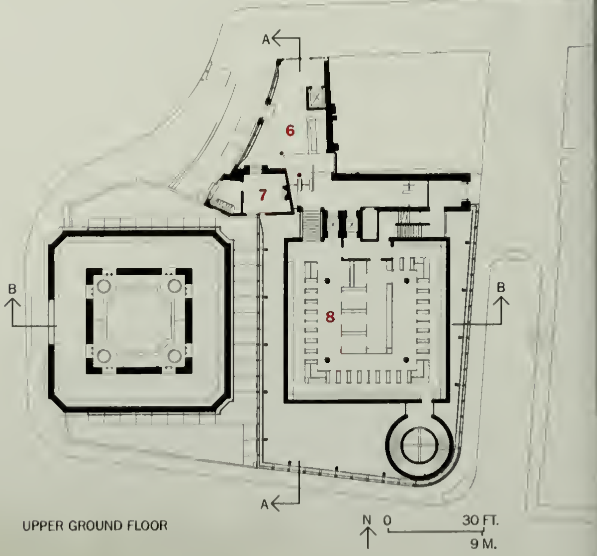
FIRST FLOOR



SECOND FLOOR



LOWER GROUND FLOOR



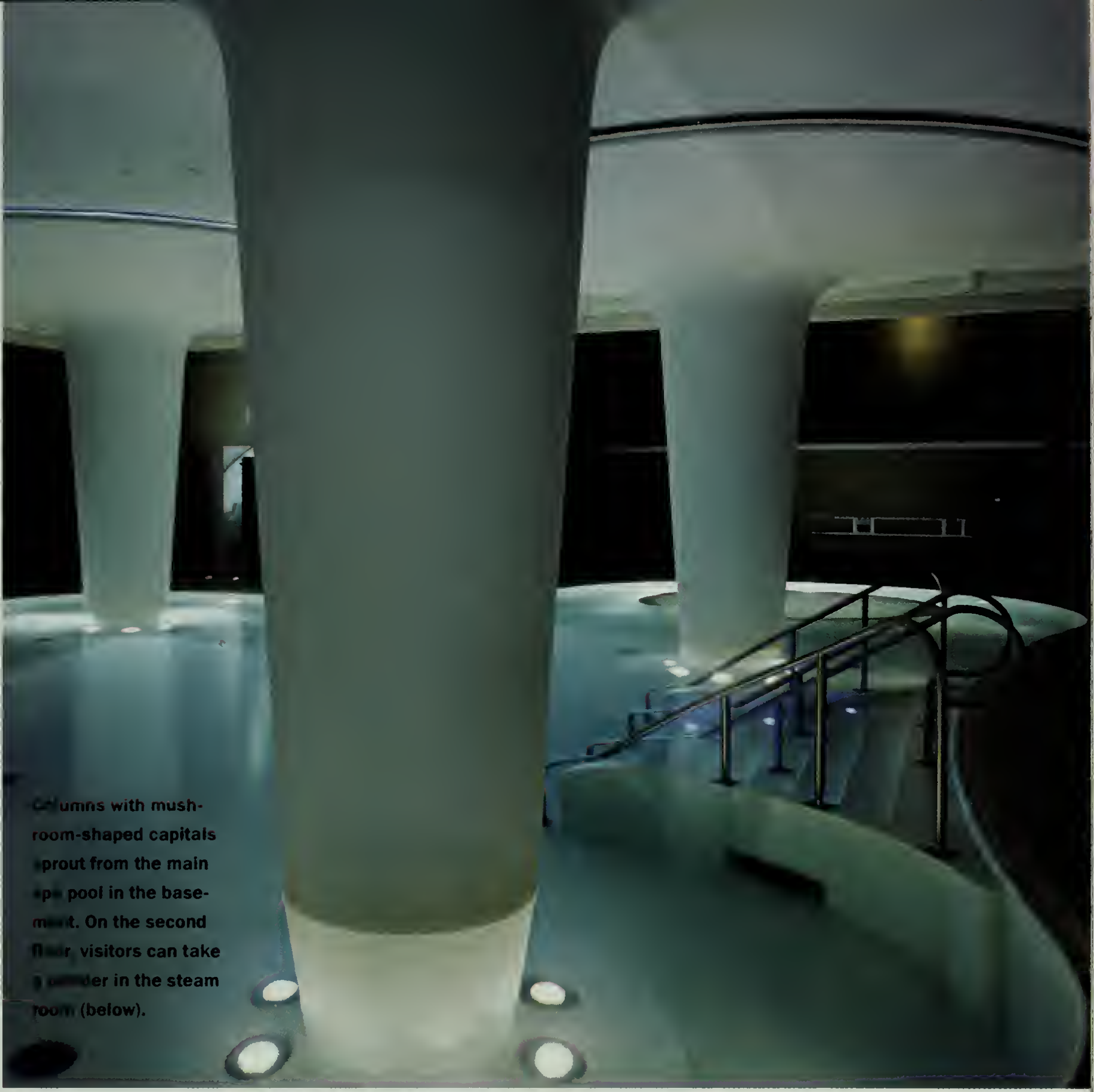
UPPER GROUND FLOOR

colonnade on Bath Street. Interlinked old and new buildings are thus the essence of the new spa. But the new building does what the old could never do: It rises vertically, through five stories. It is conceived as a sandwich of water, with a large pool in its daylit semibasement, and a second one on the rooftop. The levels in between are filled with treatment areas such as steam, massage, and changing rooms.

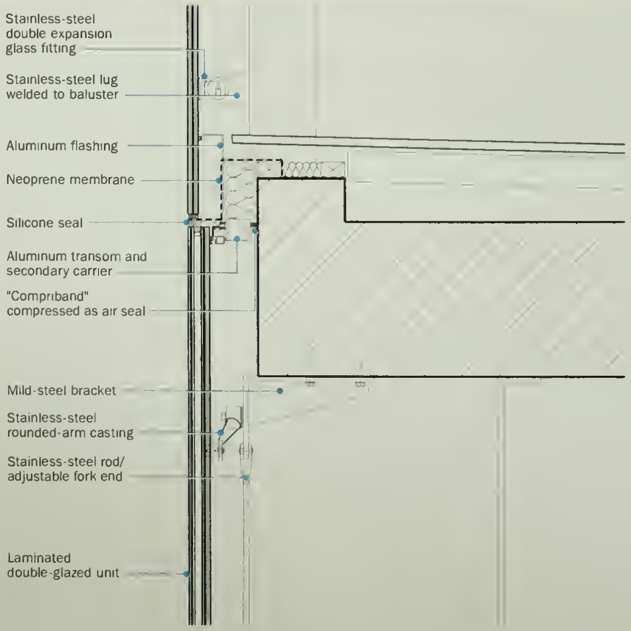
The new building takes the form of a stone cube and freestanding pierced cylindrical drum, both enclosed at lower levels in a glass jacket. The stone is the famous golden Jurassic limestone from which Bath has always been built. The cube, identical in plan dimension with the Hot Bath next door, comprises the main space, with the cylinder its servant, containing stairs and service equipment. The taut glass skin resolves the geometric differences between the cube—aligned on axis with Wood's Hot Bath—and the narrow streets that form an irregular right angle against the site. The gap created by the plan is exploited to bring daylight into the semibasement's main pool.

From that pool erupt one of the building's most distinctive features: four fat, flaring, mushroom-headed columns, repeated on each level. The diameters of their capitals generate a cloverleaf diagram that defines the zones on each floor, except on the changing-room level, where the client favored a conventional rectilinear layout that would accommodate more changing facilities. Reminiscent of Frank Lloyd Wright, these columns also have a muscular, Roman/Etruscan feel to them, an allusion perhaps to the history of the site. As with a Roman aqueduct, there is the sense of a great mass being borne aloft.

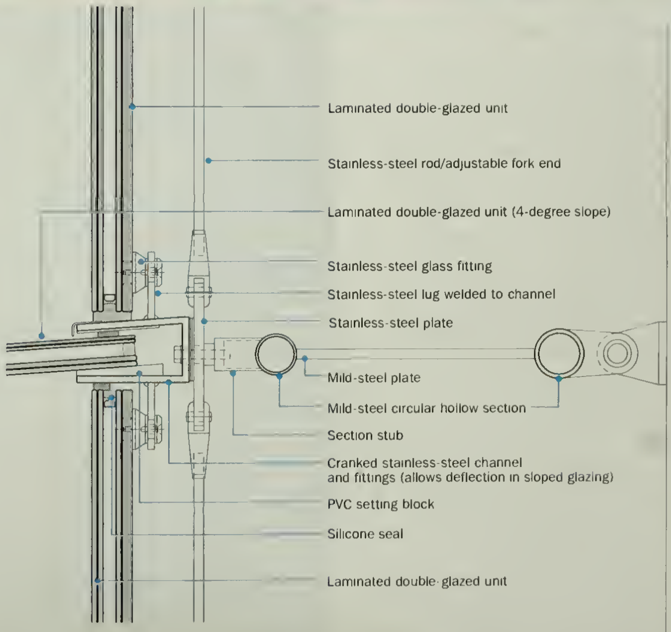
Atop the cube is Grimshaw's second piece of theater. The rooftop pool, ringed with only a delicate glass balustrade and a minimal enclosure to the elevators at one side, will become the enduring image of the new building. Grimshaw himself imagines lounging in its warm waters as snow falls around



Columns with mushroom-shaped capitals sprout from the main spa pool in the basement. On the second floor, visitors can take a shower in the steam room (below).


Stainless-steel double expansion glass fitting
Stainless-steel lug welded to baluster
Aluminum flashing
Neoprene membrane
Silicone seal
Aluminum transom and secondary carrier
"Compriband" compressed as air seal
Mild-steel bracket
Stainless-steel rounded-arm casting
Stainless-steel rod/ adjustable fork end
Laminated double-glazed unit

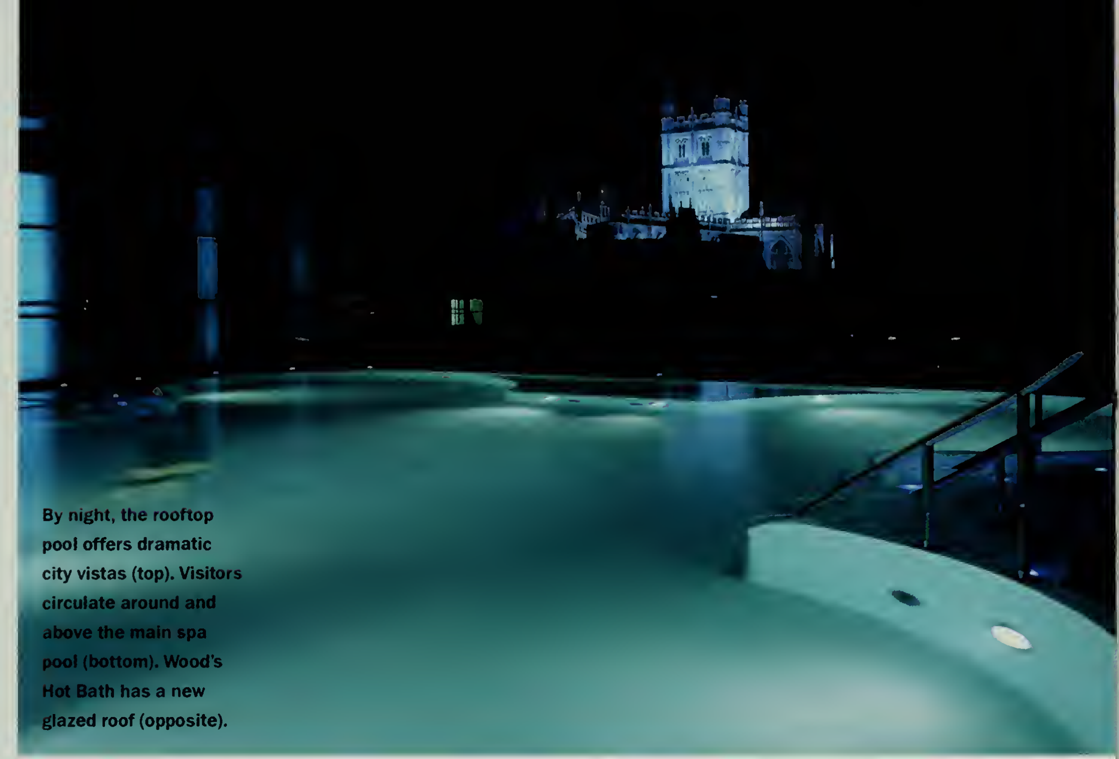
CONNECTION OF GLAZING TO STRUCTURE OF NEW SPA


Laminated double-glazed unit
Stainless-steel rod/adjustable fork end
Laminated double-glazed unit (4-degree slope)
Stainless-steel glass fitting
Stainless-steel lug welded to channel
Stainless-steel plate
Mild-steel plate
Mild-steel circular hollow section
Section stub
Cranked stainless-steel channel and fittings (allows deflection in sloped glazing)
PVC setting block
Silicone seal
Laminated double-glazed unit

THREE-WAY GLASS JUNCTION (LINKING SKIN OF NEW SPA TO RESTORED HOT BATH) him, gazing across the rooftops to the surrounding hills.

Commentary

The actuality of that romantic image has been delayed, as a tedious contractual dispute over the quality of the pools' coatings has dragged on and postponed the public opening to spring 2004. More important to note is that Grimshaw is palpably at ease working in one of the world's most sensitive historic contexts. He has demonstrated that uncompromised Modern architecture can acknowledge history and can exist fruitfully alongside restored ancient buildings—and in doing so, both can gain from each other. In realizing the goals for the Bath Spa, Grimshaw has done architecture a considerable service. This is clear-headed, practical urbanism. ■



By night, the rooftop pool offers dramatic city vistas (top). Visitors circulate around and above the main spa pool (bottom). Wood's Hot Bath has a new glazed roof (opposite).

Mill City Museum
Minneapolis

3

MEYER, SCHERER & ROCKCASTLE OVERHAULS A LANDMARKED SITE WITH A PROJECT THAT LOOKS TO A CITY'S FUTURE WHILE HONORING ITS HISTORY.

By Camille LeFevre

Architect: *Meyer, Scherer & Rockcastle—Thomas Meyer, AIA, principal in charge; Patricia Fitzgerald, AIA, project manager; Paul Udris, AIA, project architect (design); John Stark, AIA, project architect (construction administration); Leanne Larson (interior design); Carla Gallina (lighting design); Robert Adams, Steve Epley, Paul Yaggie, AIA, project team*
Client: *Minnesota Historical Society*
Engineers: *Bakke Kopp Ballou & McFarlin (structural, civil); Lundquist, Killeen, Potvin & Bender (mechanical, electrical)*
Consultants: *Damon Farber & Associates (landscape); Building Solutions (detailing)*
Contractor: *Sheehy Construction*

Size: *100,000 square feet*
Cost: *$20 million*
Completion date: *September 2003*

Sources
Metal wall panels: *Copper Sales*
Roofing: *Morin Corporation*
Windows: *Marvin (wood); Coast to Coast Manufacturing (steel); Efco (aluminum)*
Glazing and skylights: *Pilkington*
Doors: *Curries*
Cabinetwork and custom woodwork: *Wilke Sanderson*

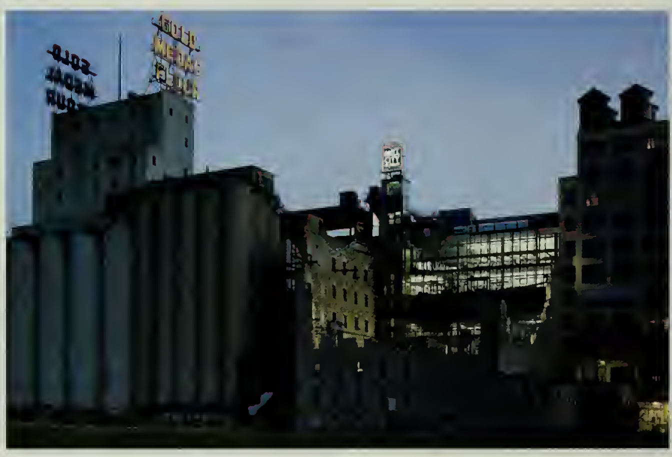
For more information on this project, go to Projects at **www.architecturalrecord.com.**

In the 1880s, Minneapolis was known as the "Flour Milling Capital of the World," its mills powered by St. Anthony Falls in the Mississippi River. The industry attracted so many workers that the city's population grew by 350 percent in 10 years. At its zenith, 20 mills lined a river canal, including the Washburn A Mill. Designed by Austrian engineer William de la Barre and built in 1878 at the site of a former mill destroyed by an explosion, the A Mill was the largest, most technologically advanced facility of its time. At peak production, it ground enough flour for 12 million loaves of bread per day.

In 1928, the A Mill was rebuilt after another explosion. Following the decline of the milling industry after World War I, the A Mill closed in 1965. In 1971, the building was added to the National Register of Historic Places, and 12 years later it was designated a National Historic Landmark.

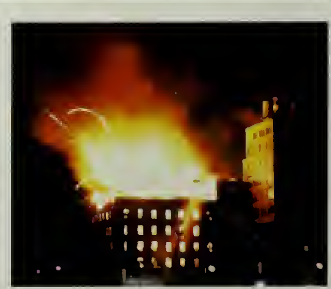
Program

In 1991, the A Mill was destroyed by fire again. As its shell smoldered, Nina Archabal, director of the Minnesota Historical Society (MHS) in St. Paul, convinced local authorities to move the fire hoses that were pushing against the stone walls, threatening their structural integrity. The ruin, she emphasized, had value as a historic site.



Weeks later, Meyer, Scherer & Rockcastle (MS&R) of Minneapolis, which had been consulting with the city and MHS on riverfront development, produced a model showing how the mill's north shell along the river could be preserved as a ruin and the rest of the building redeveloped. The firm got the job and began fortifying the ruin walls with a steel-stabilization structure designed to contrast with the existing remains through its red color and nonorthogonal geometry. Then renovation began.

Last September, the Washburn A Mill reopened, featuring the 80,000-square-foot Mill City Museum on the lower three levels and in the north ruin courtyard. The multipurpose building also houses 62,000 square feet of office space: MS&R's offices on the seventh and eighth floors, and The McKnight Foundation (also designed by MS&R) on the fourth and fifth.

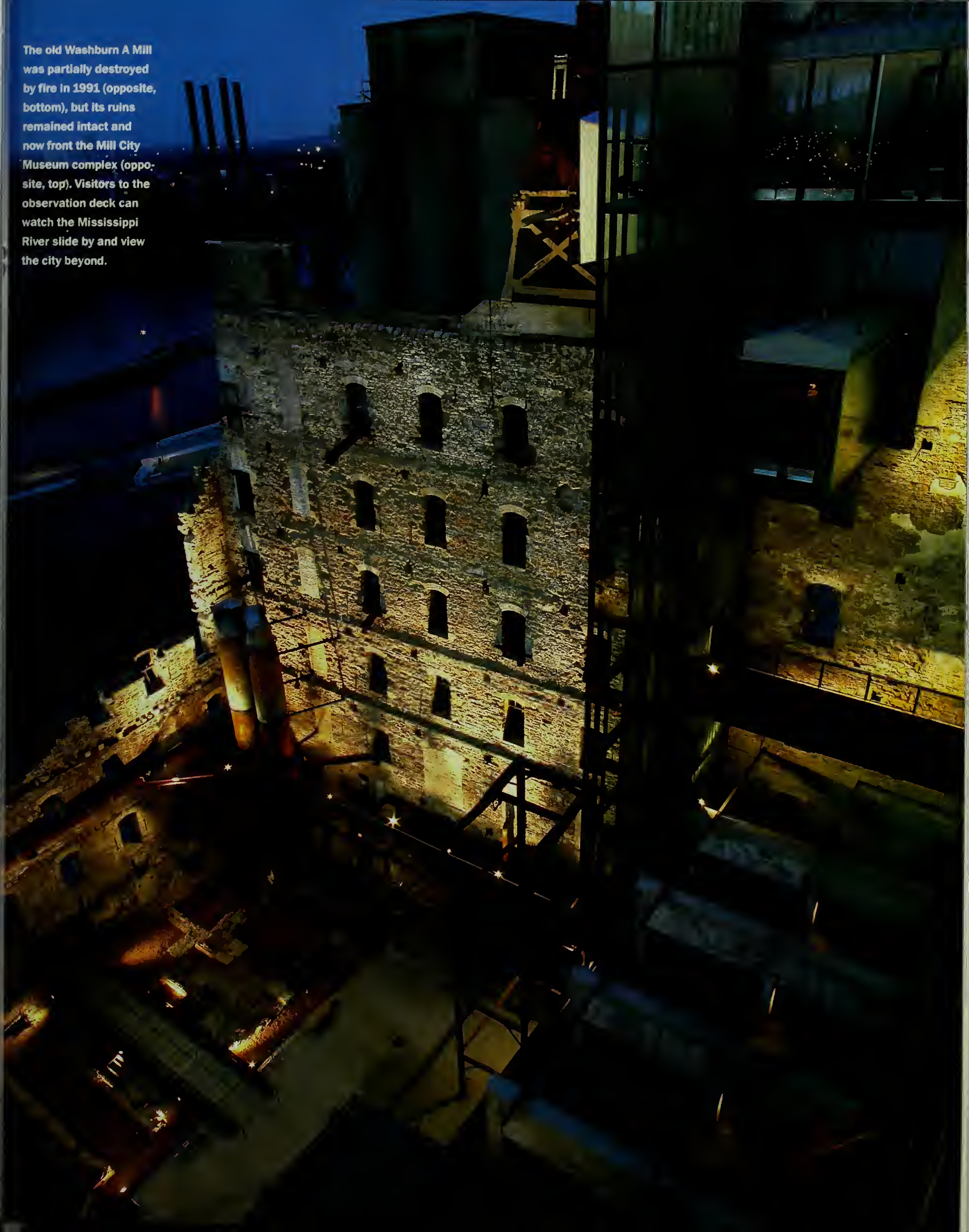


Solution

MS&R brought together the existing structure, milling artifacts, and new materials to create a building that, in itself, acts as a multilayered exhibition about the city's history. "The challenge was to draw out the meaning and purpose of the building and orchestrate that, not create it," says Tom Meyer, AIA, principal.

The ruin courtyard, with its

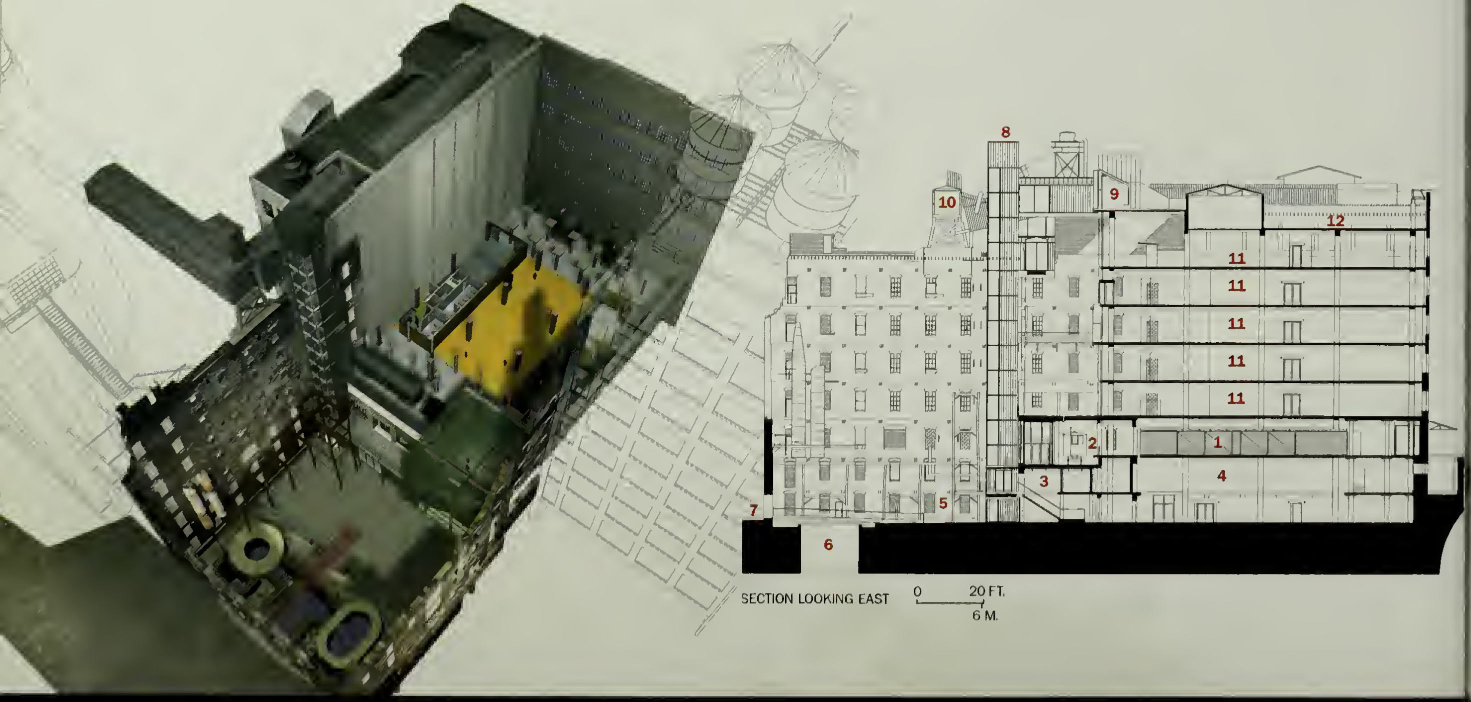
Camille LeFevre is the editor of Architecture Minnesota.



The old Washburn A Mill was partially destroyed by fire in 1991 (opposite, bottom), but its ruins remained intact and now front the Mill City Museum complex (opposite, top). Visitors to the observation deck can watch the Mississippi River slide by and view the city beyond.

The ruin courtyard contains the remains of two turbine pits that once powered the mill (above). The staggered, glazed facade of the infill structure is partially braced with a steel exoskeleton, and its lower portions are etched with machinery graphics (opposite).

1. *Lobby*
2. *Rail corridor*
3. *Stair to exhibits*
4. *Exhibits*
5. *Ruin courtyard*
6. *Turbine pit*
7. *Canal*
8. *Elevator*
9. *Observation deck*
10. *Conveyor*
11. *Offices*
12. *Mechanical*

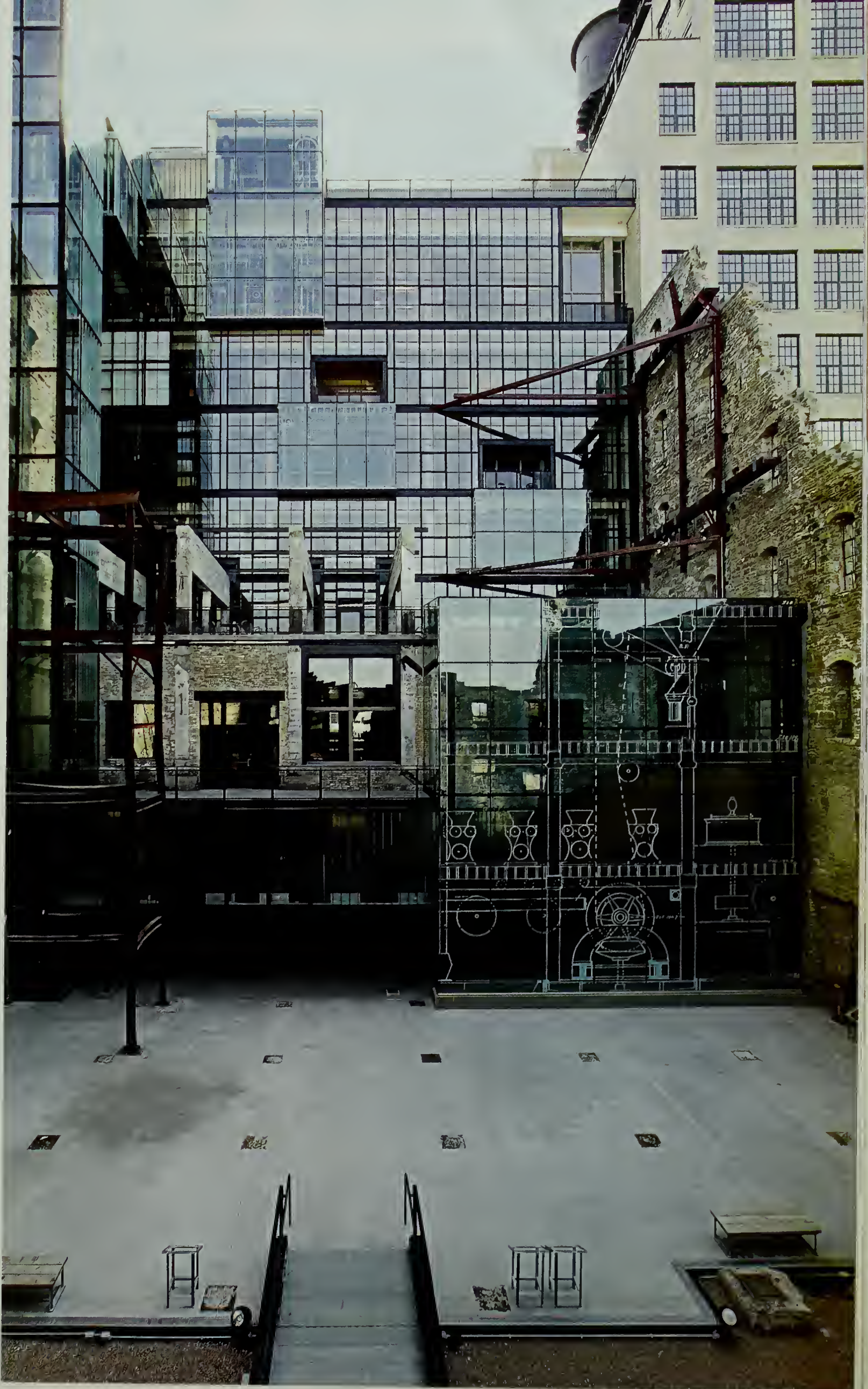


weathered brick walls, glassless windows framing views of St. Anthony Falls, and painted-steel support beams, includes two large pits where water turbines once churned. On the building's lower level, the mill's original columns, wood beams, and dust collectors were reinstalled as museum exhibits.

The interior is a series of vignettes derived from a field survey of the abandoned building. An existing rail corridor within the structure, complete with boxcar, is now a school-bus entrance. The east engine house, which once held gigantic boilers, now houses classrooms. A new freight elevator is called the Flour Tower and serves as an eight-story multimedia interpretive "ride" that provides views of whirling, clanking mill machinery as it rises through each floor.

In the exhibition space and lobby, 35 concrete columns in a restrictive, 13-foot-square grid, dating from after the 1928 fire, were removed and replaced by 16 columns at twice the spacing to increase flexibility. The lobby floor is composed of the same type of end-grain wood once used for nearby streets. A decorative pattern for the wood ceiling scrim was created by enlarging a photocopied image of wheat berries. "Our design philosophy was to do everything the way the millers did—work with simple materials that are readily available: concrete, steel, wood, and glass," says project architect John Stark, AIA.

The building's south facade introduces layers of history: The stone on the lowest levels is from 1878, and the brick from the third floor up was added in 1928. But the project's tour de force is the fronting of the ruin courtyard with a new, north-facing, 8-story glass curtain-wall facade. "Our challenge was to decide what to do when putting a new facade on a National Historic Landmark," notes Meyer. "How do we both respect the history and let the new have a voice of its own?" he asks rhetorically. The internal rail corridor was both the natural termination of the museum lobby and the logical location for the new facade, a grid of light, 8-inch-wide flange beams at the

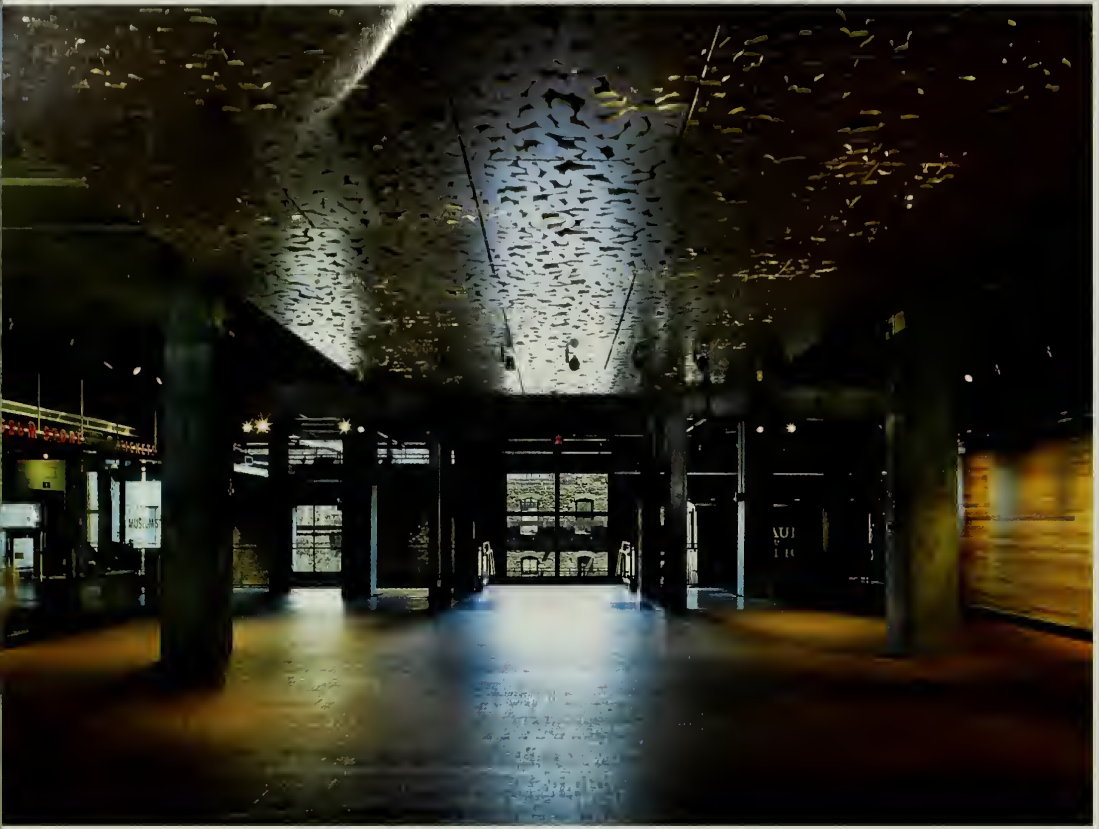


spacing of the original columns to provide wind resistance for the thin, steel industrial sash, floor-to-ceiling windows that are mounted 12 inches outward from these beams. From this basic enclosure, a mullionless glazing system projects out in four places, like bay windows, illustrated with machinery graphics.

Commentary

As the first project on the Historic Register to incorporate an existing ruin, the Mill City Museum sets a precedent with its seamless juxtaposition of the ruin's mystery and the raw energy of the historic building with a refined, respectful new structure. Sectional hieroglyphics from a long-ago era, combined with old support arches and brick walls, and the glass elevator and ninth-floor observation deck, create a composition that makes clear the interventions without disturbing the layers of history reflected in color, material, and texture.

Minneapolis's riverfront and mill district have been undergoing piecemeal restoration for the past decade. By 2005, the Mill City Museum complex will stand alongside the Guthrie Theater designed by Jean Nouvel. The project is the keystone in the riverfront's revitalization, as much an icon today as the old A Mill was in the Flour Capital's heyday. ■



Wood and concrete dominate the material palette in the museum's lobby (above); the ceiling scrims were custom-made from a pattern created by the architect. Alongside the rail corridor, equipment and artifacts are displayed from the old mill (left). A freight elevator serves as an interpretive "ride" for the mill's history (below).

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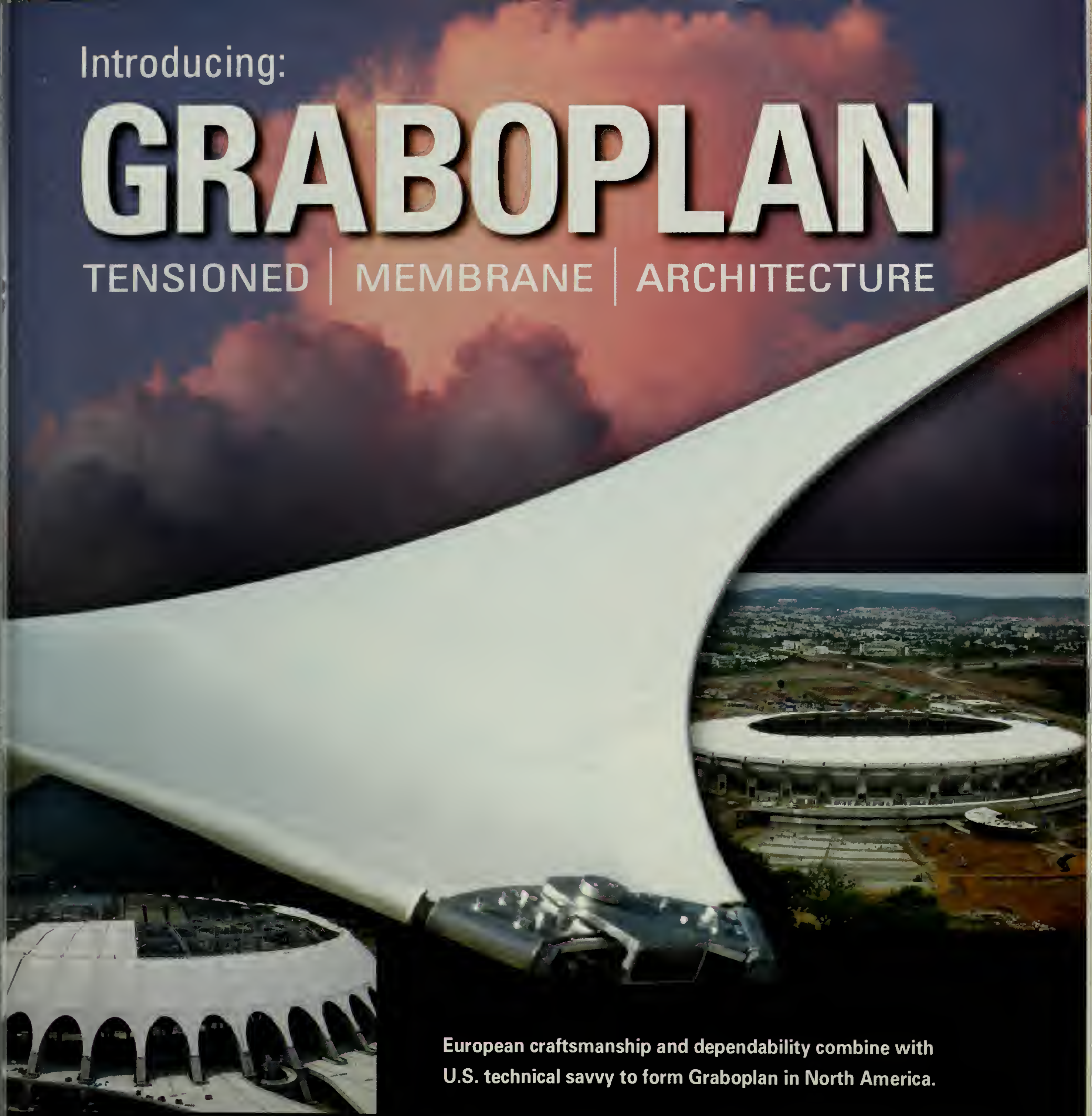

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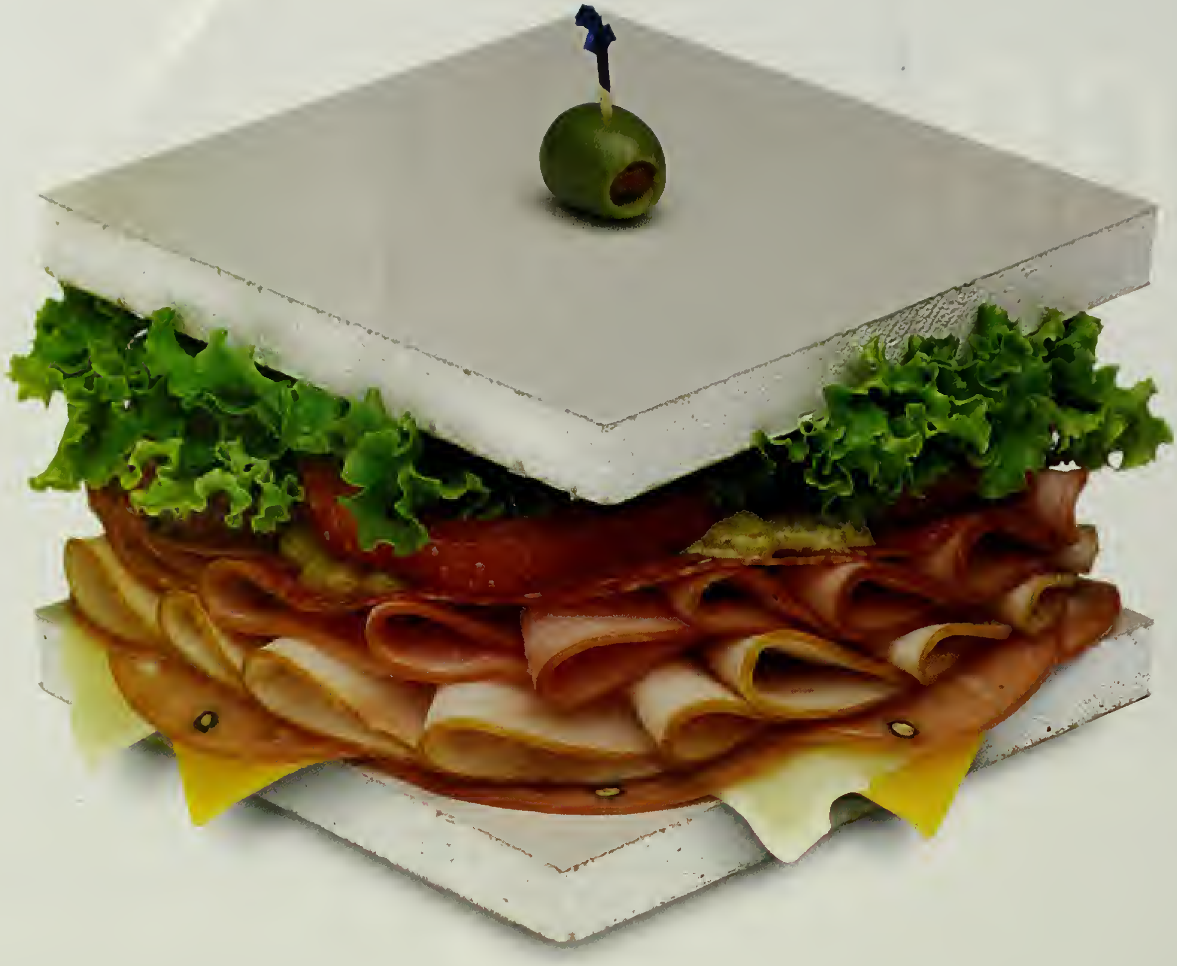

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Integrating Contemporary Systems into Historic Structures Without Destroying Significant Fabric

WITH A SOLID UNDERSTANDING OF BASIC BUILDING DYNAMICS, ARCHITECTS UPGRADE OLD BUILDINGS

By Nancy B. Solomon, AIA

In the early 1990s, architects and engineers at the forefront of the preservation movement were troubled by the problems still faced by historic buildings—particularly historic house museums. Unfamiliar with the dynamics of old construction and eager to satisfy a range of often conflicting requirements for artifacts and occupants, many well-intended owners and designers unwittingly undermined historic fabric when they inserted new systems into existing buildings. Discussions on this subject at preservation symposia in Montreal in 1990 and New Orleans in 1991 led to the formulation of "The New Orleans Charter for Joint Preservation of Historic Structures and Artifacts." By 1992, this document was adopted by the American Institute for Conservation of Historic and Artistic Works, the Association for Preservation Technology International, and the National Conference of State Historic Preservation Officers.

The charter acknowledges the conflict that often arises between the needs of a historic building and the content it houses, and rejects strategies that support one at the expense of the other. Among other items, the charter calls for thorough understanding of the needs of both, an interdisciplinary design team that can work together to address the complex issues, actions that achieve the desired goals with the least intervention to either historic structure or artifacts, and a solution that can realistically be maintained over time by the client.

The charter gives the best guidelines for doing this work. While this approach should be applied to any historic project, the complexity will be different for each building, depending on its construction and function. For example, because it must accommodate precious artifacts in addition to occupants, the renovation of a museum with a rare collection will be more challenging than that of an office building.

Contributing editor Nancy B. Solomon, AIA, writes about computers, building technology, and topics of interest to the architectural profession.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/AIA Continuing Education article. To receive credit, turn to page 136 and follow the instructions. For additional opportunities to receive Continuing Education credits, and to learn about important changes in AIA Continuing Education guidelines, go to www.architecturalrecord.com, under Resources, then click on Continuing Education.

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Identify the problems associated with integrating building systems into historic structures.*
2. *Explain the humidity issue and its impact on the historic buildings.*
3. *Discuss the job of the preservation architect.*

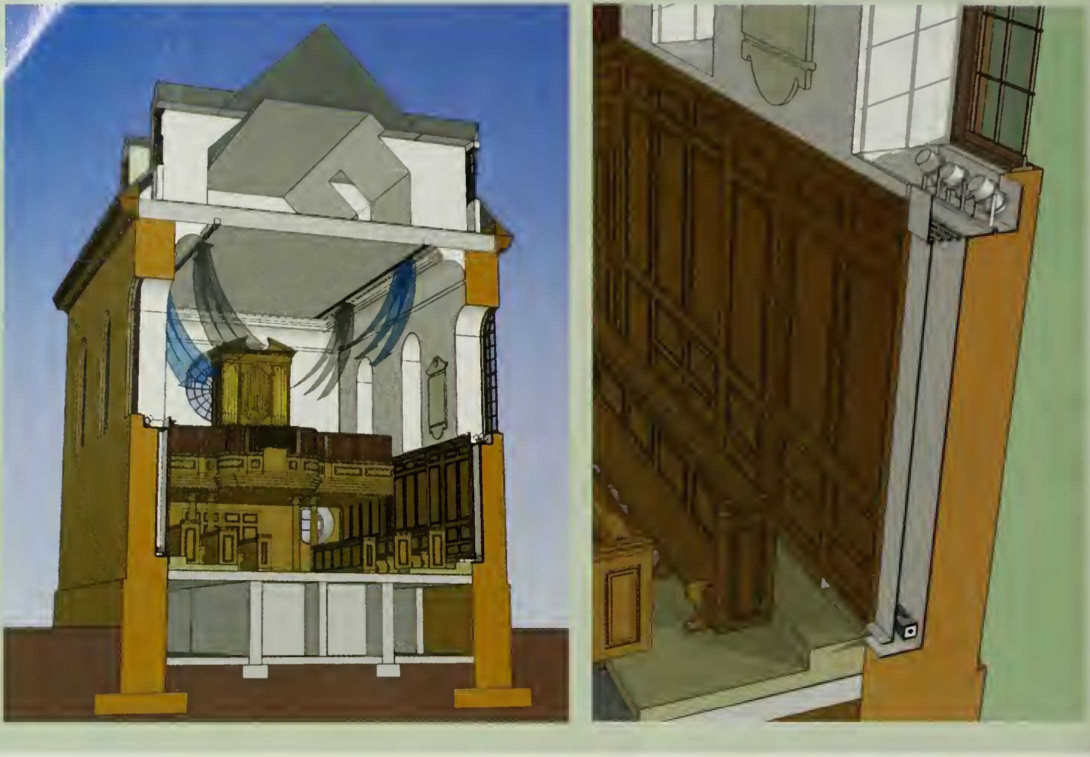
For this story and more continuing education, as well as links to sources, white papers, and products, go to **www.architecturalrecord.com**.

In 2000, the College of William & Mary's Sir Christopher Wren Building, the oldest academic building in continuous operation in this country, was modernized.

The topic of historic buildings appeared in the *ASHRAE Applications Handbook*—the standard reference of mechanical engineers—for the first time in Chapter 20 of the 1999 edition, entitled "Museums, Libraries, and Archives." "Climate problems have been a constant in historic museums," says mechanical engineer Ernest Conrad of Landmark Facilities Group in Norwalk, Connecticut, who contributed to the chapter. With this ASHRAE addition, he continues, "We finally got a chance to explain to engineers how these systems should be designed."

The source of the problem lay in the fact that, in many historic museum designs, the needs of the collection took precedence over the needs of the building envelope. New forced-air mechanical systems were often designed to meet the strict levels of temperature and humidity once thought necessary by many curators—70 degrees Fahrenheit and 50 percent relative humidity year-round. This meant that the now-positive air within the interior pushed the more humid air through inevitable cracks in the older, more loosely constructed envelope. During cold months, the air vapor would condense and then freeze—resulting in spalling of masonry and other deterioration.

In contrast, the handbook explains that the mechanical design process should begin with an understanding of the capability of the existing building rather than the needs of the collection: "(1) Determine what tempering of the outdoor climate is already achieved by the building (including



The Prototype
Quinn Evans Architects made every effort to retain the character of the chapel (right), the Wren Building's most significant historic space. Theatrical lighting (detail, far right) was installed at each windowsill. Hidden from view, this indirect lighting system allows for typical functions in a space that was once illuminated only by candlelight.

what fresh air requirements are provided by existing infiltration). (2) Determine what extremes of natural indoor climate swings are unacceptable. (3) Design mechanical services to prevent the undesirable extremes."

According to William B. Rose, research architect at the Building Research Council, University of Illinois at Urbana-Champaign, and coauthor of Chapter 20, most older museums maintain acceptable standards with no intervention. And, despite previous misgivings of some curators, the slow change, or ramping, of humidity that naturally occurs between winter and summer can be tolerated in many locations by many types of artifacts. "If you just hold back and let nature take its course naturally, it will do what you need," says Rose.

By starting with what the building delivers and intervening only to eliminate the extremes, those buildings that do require additional adjustments will be subjected to less stress, and the mechanical equipment will be smaller—an advantage in old buildings, which typically have little service space to spare—than would occur if the entire system were overhauled.

The handbook also recognizes that in some cases a structure cannot be converted into fully climate-controlled spaces. "Every building has limited capacity to it," explains Skarmeas. "If you cross the threshold, you create very expensive problems."

Of all the building systems, HVAC clearly poses the greatest threat to a historic building because of the size of the equipment to be inserted; the changes it introduces to airflow patterns; the presence of water; and, although remote, the possibility of a furnace exploding. But the principles of the charter, and the message underlining the ASHRAE handbook Chapter 20, apply to all building systems, including fire safety, electrical, lighting, telecommunications, and security. Essentially, let the building be the guide to what is possible. "The job of the preservation architect," says Skarmeas, "is to become the voice of the building. The building will tell you what it can and cannot do, and the architect must convey that to the client and other stakeholders."

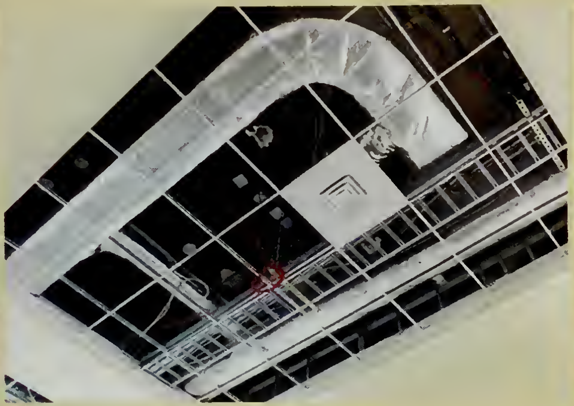
As illustrated by the projects on these pages, experienced preservation architects and engineers go to great lengths to study the building's existing conditions; analyze which areas are less significant and, therefore, can be reasonably disturbed; explore new technologies or alternative methods to avoid disruption of historic fabric, develop a patchwork of design solutions that fit the character and opportunities presented by each room; coordinate closely with all members of the design team to ensure that all systems mesh carefully within limited space; and work with clients to ensure that the painstaking planning and execution that has gone into preserving the historic property will not be undermined by uninformed users. It's an exercise in both passion and humility.

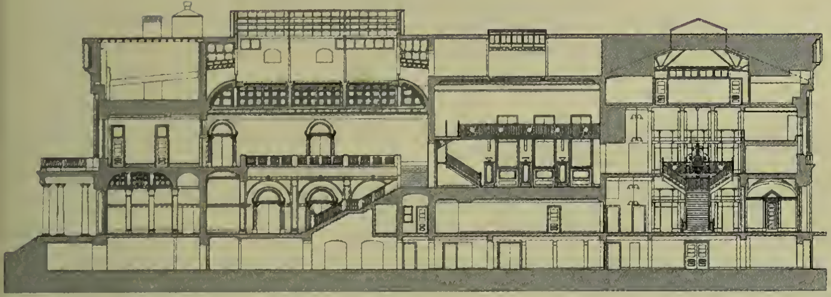
The Ryan Building

The Ryan Building, in Harrisburg, Pennsylvania, was originally constructed by the Commonwealth of Pennsylvania in 1893 to house the governor's executive offices, the state library, and the state museum. Designed by Philadelphia architect John T. Windrim, it is the oldest building in Harrisburg's Capitol Hill District, a historic area that includes the state capitol. The governor moved out by 1906, followed by the library and museum. Over the years, different tenants moved in and out, and with each turnover came more and more unfriendly, expedient modifications. The interior splendor of the original Neoclassical-style building had become so diminished that the building owner—Pennsylvania's Department of General Service—at one point considered flooring over the two-story central hall in the library in order to make the building more efficient.

In 1996, the Department of General Service hired Vitetta, an architecture and engineering firm in Philadelphia, to restore and adaptively reuse the structure for the state's legislative offices. Outgoing Speaker of the House Matthew J. Ryan, for whom the building was named, wanted the work to be historically respectful. But the architecture and engineering firm was also charged with doubling the building's occupancy. The project was completed in 1999.

"The key to the project," notes Hyman Myers, AIA, director of





Matthew J. Ryan Building, Harrisburg, Pa., Vitetta Architect

Instead of forced air, the architects chose a four-pipe system to replace the steam radiators and were able to conserve valuable ceiling space for a separate, ducted ventilation system, sprinklers, and electrical wiring (above center). The new offices were framed to maximize ceiling heights (above right). Cable trays and wiring were routed elsewhere.

historic preservation at Vitetta, "was the attic and the basement." These had been used for storage, not offices, for good reason: The attic was dark and hard to access and the basement felt confining.

Vitetta reinstalled new skylights in the roof where old ones had long been removed, and divided the long attic space with translucent window-glass partitions to maximize light penetration between open-office areas. A new elevator and two fire stairs were carefully inserted within the original footprint to reach the attic floor.

In the basement, the architects tore down a labyrinth of partition walls and lowered portions of the floor to ensure adequate ceiling height. An original brick arcade became the defining architectural element in the renovated space. Instead of a dark maze, the basement became an open area with natural light and distinctive features.

By reclaiming these underutilized upper and lower zones for administrative and technical support, Vitetta was able to retain the original architectural character of the public halls and offices on the main floors.

The building was originally heated with steam radiators, with a coal-fired boiler in the basement. To heat and cool, the design team chose a four-pipe system with hot and chilled water supplied from a central campus plant. Ventilation was handled with a separate ducted central system. By heating and cooling with a piping system rather than forced air, the design team reduced the needed number and size of ducts and mechanical grills. As a result, the architects were able to retain much of the original ceiling heights and avoid large cuts for ductwork into historic fabric.

The four-pipe system offered flexibility in terms of how each space was conditioned. In the basement, the pipes were run along the perimeter walls. This significantly reduced the amount of ceiling space needed to conceal sprinkler pipes, electrical wiring, and ventilation ducts. By keeping the dropped ceiling to a minimum width, the architects made sure that ceilings adjacent to the brick arcade and exterior windows remained at the original height and were finished with historic plaster. Individually controlled fan-coil units were installed between the windows, above the workstations.

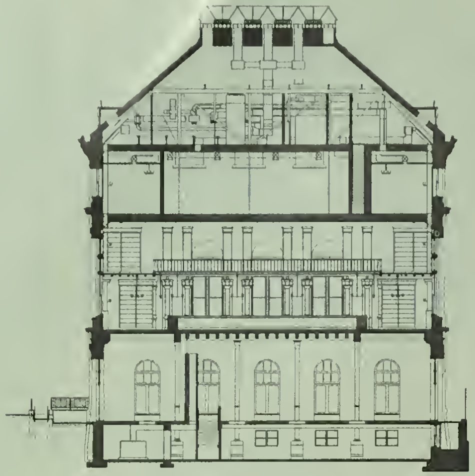
One set of pipes from the basement runs up the perimeter wall to serve fan-coil units in first-floor offices. Another set also rises along the perimeter wall from the basement, then travels across a shallow dropped ceiling on the first floor, to make its way to fan-coil units in second-floor offices. For most of the members' offices, the fan-coil units fit nicely into existing recesses under the windows, behind grilles that once screened radiators. In the corners of two offices where the windows extend to the floor, the architects installed original radiators that had been recovered and restored.

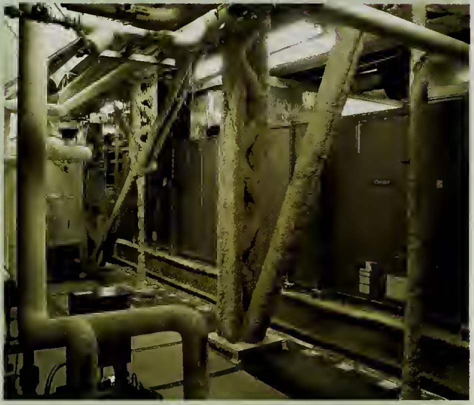
Only minimal conditioning with ducts was provided to the West Stair Hall, a monumental public space. To provide more would have meant putting additional mechanical equipment in the basement, which would have taken up precious office space—or in the attic, which would have resulted in the insertion of too many noticeable grilles high up in the elegant space. Neither option was acceptable. Instead, the designers rationalized that because the great hall is an interior space that is typically not occupied, it was best to leave it be.

The four-pipe system serves air handlers and VAV boxes in the attic, where sufficient ceiling height allowed for more ductwork.

The design team also took pains to distribute the many other building systems with minimal disturbance to the original design concept. To maintain the relationship between the original ceiling and window heights in the legislative members' offices, for example, cable trays and electrical wiring were routed within dropped ceilings in adjacent support-staff areas. The architects inserted rectangular fields of acoustic lay-in tiles periodically within a new plaster ceiling here, creating a classic-looking pattern while allowing access to these networks.

Vitetta's varied solutions to different spaces is a reflection of what Myers has come to appreciate in his years of working with old structures: "The 'one-size-fits-all' concept cannot apply to a historic building. Each space has to be designed based on what it needs." Admittedly, this requires much more time to design and to coordinate. "The premium is on the





Brooklyn Historical Society, N.Y., Jan Hird Pokorny Associates

The restored exterior is faithful to the original 1880s facade (top right). Before the mechanical equipment was installed, the historic iron trusses supported the roof and the attic floor. The fourth floor is suspended by iron rods (right). New mechanical equipment overstressed the truss, so new structural steel was added to support the air-handling units (far right). Steel and equipment were delivered by crane through large holes cut into the existing slate roof, which was then repaired.

design team," adds project manager Michael Holleman, AIA. "We need to have the stamina to get that kind of work to occur."

Brooklyn Historical Society

Completed in 1881, this four-story, eclectic Queen Anne–style building was designed by George B. Post for the Long Island Historical Society. The institution changed its name to the Brooklyn Historical Society two decades ago as part of a plan to gain wider public exposure. Its library houses the largest collection of documents on Brooklyn history, plus important Brooklyn artifacts. The building has been designated, both nationally and locally, as a historic landmark for three major elements: exterior, four-story lobby and stairwell, and two-story library. The society hired the New York firm of Jan Hird Pokorny Associates to restore the exterior and public spaces, maximize space utilization, and upgrade all buildings systems—including a state-of-the-art climate-control system. This work was finished in the fall of 2003.

The original building featured a 600-seat auditorium that ramped down from the first floor. This had been covered up in 1917 to create commercial space. The two-story library has always occupied the second and third floors. The fourth floor was first designed as an exhibition gallery but more recently used as storage for the collection. Part of the attic was also used for storage.

Pokorny Associates removed the sloped auditorium floor and installed a new first floor. This made way for a gallery on grade and additional programming and mechanical space below. Three smaller exhibition rooms and one computer room were located along the northwest and southwest corners of the second and third floors. The collection storage on the fourth floor was organized within a windowless, climate-controlled room in the center, wrapped by administrative offices along the perimeter. An intrusive elevator shaft was removed from the historic stairwell, returning this space to its former grandeur. And a new elevator and upgraded toilet facilities were inserted to either side of the refurbished stairwell.

The entire building was originally heated with steam radiators. Commercial-grade air-conditioning units were subsequently installed for additional climate control at a first-floor gallery and fourth-floor storage area. The building lacked any humidification or particle-filtration system. According to mechanical engineer Philip C. Steiner, a principal of the mechanical and electrical engineering firm AltieriSeborWieber in Norwalk, Connecticut, irreplaceable paper objects—including documents from the Revolutionary War—sat on library shelves in close proximity to leaky steam radiators, open windows, and grilles connected to roof vents. "All the dirt and grime was coming in," recalls Steiner. Conditions in the storage area were not much better.

The project team selected forced air for the new mechanical system. The boiler and chiller, plus air handlers for three zones in the renovated basement and first floor, were fairly easily inserted into the basement.

Installing air-handling equipment in the attic for five zones in the upper floors, however, proved more challenging. Structural testing

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Environmental Protection Agency, Washington, D.C., RTKL Associates

The agency consolidated its 7,000 employees into two seven-story buildings (above). Most of the historic spaces (right two) were in good condition, but in all cases the HVAC systems had to be upgraded or replaced. In the office areas, all the horizontal infrastructure was located in a ceiling soffit along the interior zone of the office walls. Workstations were placed under the soffit, and circulation was moved along the exterior wall.

revealed that the attic roof trusses could hold no more weight, so new structural steel beams were inserted between masonry bearing walls over the original attic floor. These beams support the new mechanical equipment. A roofing membrane was applied over the exposed wood floor to protect artifacts on the floors below from any potential leaks in the equipment.

Between the existing trusses and the new structural beams, the geometry of the attic became very tight. According to Robert Motzkin, principal at Pokorny Associates, fitting the equipment in was "like threading needles." In some cases, the equipment had to be altered at the factory to make it work.

One set of ducts ran from the attic to the fourth floor, which was not designated as a historic space. These remained exposed in the archival storage room and were hidden above suspended ceilings in the administrative zone wing.

Greater effort had to be taken to conceal the ductwork for the historic reading room. Another set of ducts from the attic were boxed out between the windows on the fourth floor and then ran down into vertical chases carved out of existing bookcases on the library balcony. Diffusers at the back of each stack serve the upper zone of the library, and those along the underside of the balcony serve the library's lower level.

The mechanical zones for the first-floor gallery, the double-height library, three exhibition rooms, and a fourth-floor storage room are conservation-grade: They are designed to create stable temperature and humidity and to remove gases and particulate matter. The design calls for a winter humidity level of 30 percent and a summer humidity level of 50 percent in these areas. The client had originally hoped that the winter humidity level would be maintained at 50 percent as well, but vapor migration analysis undertaken by the mechanical engineers indicated that, without the addition of a vapor barrier, a relative humidity higher than 30 percent could lead to condensation within the load-bearing brick and terra-cotta masonry wall. Because of the building's historic status, the interior wall finishes could not be removed to insert such a barrier. To moderate between the two levels of relative humidity, an automatic temperature control system incrementally adjusts the humidity levels over the course of six weeks between winter and summer.

Environmental Protection Agency

With the help of RTKL Associates in Washington, D.C., the Environmental Protection Agency consolidated most of its 7,000 employees within two seven-story buildings in the Federal Triangle, an assemblage of government buildings in the nation's capital. One, the United States Customs Service Building, is actually a compilation of three interconnecting buildings—formerly known as the Department of Labor, Interstate Commerce Commission, and Connecting Wing—all designed by San Francisco architect Arthur Brown, Jr. The other, the Ariel Rios Federal Building, was originally called the New Post Office Building and designed by the New York City architectural firm of Delano and Aldrich. Both Classical Revival buildings were constructed between 1932 and 1934. They are included in the National Register of Historic Places as part of the Federal Triangle Historic District. RTKL's restoration was completed in 2003.

"In general," reports Karl Stumpf, AIA, director of preservation at RTKL, "the buildings were in very good condition. Preservation spaces had been maintained well, with no major modifications or destruction of special features. The minor modifications, such as carpet, partitions, and dropped ceilings, could be easily reversed." But the building systems needed to be modernized and brought up to code.

The buildings were originally heated by steam radiators. With narrow floor plates—a 12-foot-wide corridor with 22-foot-deep offices on

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either side—and operable transoms over the office doors, they were cooled by natural ventilation. But as expectations changed and office equipment multiplied, about 1,200 window air conditioners found their way into the Classical facades.

RTKL chose a split system: a four-pipe fan-coil unit under the windows along the exterior walls—where radiators once stood—for heating and cooling, plus a variable air volume (VAV) distribution system on the interior for cooling and ventilation, but not heat. "In new construction, the natural inclination would be to go with all VAV, but for that you need lots of shaft space to bring large ducts from the air-handler units to the VAV boxes on each floor." A cooling-only VAV system requires less space for ductwork than does a full system. The VAV cooling is on most of the time, even in the winter.

The pipes were routed vertically within the interior face of the exterior wall in the general offices, which were not considered historically significant. The ducts are run vertically through new chases in nonhistoric rooms so as not to disturb historic fabric. The boilers are in a central utility plant in the subbasement level of the Connecting Wing building. The cooling towers are located in a new yard enclosure on the roof of the Interstate Commerce Commission building. Air handlers for the VAV system were installed at the attic level of the buildings.

Ductwork for the VAV boxes could not be hidden above a dropped ceiling in the corridor, as is often done, because this public circulation zone was deemed historically significant and therefore needed to be preserved. Instead, the project team routed all horizontal infrastructure, including ducts, cable trays, and electrical distribution, in a ceiling soffit along the interior wall of the office zone. RTKL located the workstations under this soffit and a circulation path along the exterior wall. This strategy assures easy access to building distribution systems from the workstations while maximizing the ceiling height along the perimeter, thus permitting abundant daylight to penetrate the interior spaces.

As is the case for most buildings from the 1930s, the original corridor doubled as a return-air plenum. Air traveled through grills in the office doors, along the corridor, and into grills near each stair that led to vertical chases. According to current life-safety codes, notes Stumpf, "corridors can't be used as a means of egress for return air. It has to be ducted."

But there wasn't enough room to run such ducts within the office soffits. RTKL was able to continue using the corridors as return-air plenums by offsetting that code deficiency with additional safety features. For example, they added diffusers with fire dampers within the corridor walls. In a fire emergency, dampers in the affected area would close, preventing smoke in that corridor from entering into the return-air supply. In addition, they buried accordion fire-rated partitions in recessed pockets at the midpoint of the corridors. These come out automatically when smoke detectors are triggered, dividing one end of the hall from the other, so that only half of the building is at risk. Passage is still possible through a door within this fire barricade.

The preservationists wanted to retain the original brass and glass doors although they did not have the fire rating required by today's code. Fire modeling of the stairs, undertaken by a fire-protection consultant, indicated that by adding more sprinkler heads and gasketing at the existing doors, occupants would have adequate time to get down the stairwell to safety. So, with these additional measures in place, the old-fashioned doors were retained. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "Integrating Contemporary Systems into Historic Structures Without Destroying Significant Fabric" using the learning objectives provided.**
- **Complete the questions below, then fill in your answers (page 176).**
- **Fill out and submit the AIA/CES education reporting form (page 176) or download the form at www.architecturalrecord.com to receive one AIA learning unit.**

QUESTIONS

1. Which building system poses the greatest threat to a historic building?
  a. HVAC
  b. electrical
  c. plumbing
  d. sprinkler

2. The threats from heating systems to historic buildings include all except which?
  a. presence of water
  b. size of equipment
  c. changes in airflow
  d. increase in voltage

3. The job of the preservation architect includes all except which?
  a. study the existing conditions of a building
  b. become the voice of the building
  c. bring the building into current technology operation
  d. explore new technologies to avoid disruption of the historic fabric

4. Climate problems have been a constant source of trouble in historic buildings for which reason?
  a. extremes in hot and cold were hard on buildings
  b. the needs of the historic collection took precedence over the building's needs
  c. extremes between humidity and dryness were hard on buildings
  d. architects did not intervene in the climatic conditions

5. The Brooklyn Historical Society building converted from and to which building systems?
  a. steam to heat pump
  b. forced air to VAV
  c. steam to forced air
  d. forced air to steam

6. The Brooklyn Historical Society building established its humidity at which level?
  a. 50 percent year-round
  b. 30 percent year-round
  c. alternating monthly from 50 to 30 percent
  d. 50 percent in summer, 30 percent in winter

7. The EPA buildings in Washington, D.C., use which method for return air?
  a. building corridors as before
  b. ceiling soffits along interior offices
  c. corridors with addition of fire dampers
  d. corridors with dropped ceilings

8. The EPA buildings in Washington, D.C., changed from and to which building systems?
  a. steam to VAV heating and cooling
  b. steam to forced air
  c. natural ventilation to forced air
  d. steam and natural ventilation to VAV for cooling only

9. In the Ryan Building, the character was retained by which alteration?
  a. restoring skylights in the attic
  b. moving administrative and tech support offices to the attic and basement
  c. removing partitions in the basement
  d. all of the above

10. The Ryan Building uses a heating and cooling pipe system rather than forced air with all except which benefit?
  a. reduced number and size of ducts and mechanical grilles
  b. quicker to design and coordinate
  c. retain much of the original ceiling heights
  d. avoid large cuts for ductwork in historic fabric

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As codes change, is automation the answer?

By Lindsay Audin and Deborah Snoonian, P.E.

A decade has now passed since the 1992 federal Energy Policy Act (EPAct) mandated that all states upgrade their energy codes to meet the standard put forth by the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE), known as ASHRAE 90.1-1989. It's time to upgrade again: States have until July 15, 2004, to improve their own energy building codes, or explain why they can't (or won't) do so.

One of the biggest changes in the new codes may be coverage: Codes adhering to ASHRAE 90.1-1999 would apply not just to new buildings but also to minor upgrades and renovations previously outside the reach of such standards. Since far more square footage is renovated than built each year, this difference could—if enforced—have a greater impact than any prior legislation that applied only to new buildings. While a variety of exemptions are suggested (for example, casinos that run flat out 24 hours a day), watch for this type of change in your state's revised energy code.

Other changes may affect project costs for engineering and construction. Tighter standards on power and energy consumption may limit equipment choices for lighting and HVAC, for instance. A greater degree of control for these systems may need to be built into designs as well—a strategy that may one day become standard practice for buildings of the future.

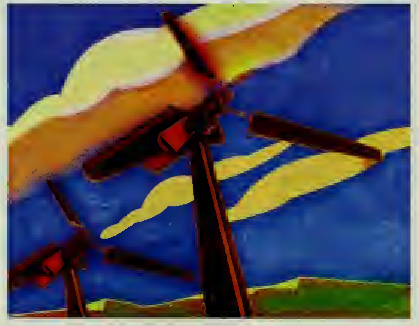
Uneven compliance

Under EPAct, all states were required to enact or upgrade energy codes that met or exceeded ASHRAE 90.1-1989's recommendations, which set minimum acceptable levels of efficiency on fans, refrigeration systems, insulation, lighting design, and other major uses of energy in nonresidential buildings. States were given time to comply, with the Department of Energy's assistance, and most did. Some states, like New York and California (which have higher energy costs than many others), already had codes in place that were more stringent than ASHRAE's—but the standard did bring attention to energy efficiency in parts of the U.S. where pricing was relatively low. However, fully a third of the states ignored the standard, either failing to create energy codes or maintaining standards weaker than EPAct required.

For the coming upgrade, some states are ahead of the curve, with codes that already go beyond ASHRAE 90.1-1999. California's Title 24 and New York's 2002 Energy Conservation Construction Code stand out in that regard. States are also realizing that it pays to go beyond minimum acceptable efficiencies. In the current political and economic climate, it's likely that follow-through and enforcement of the new codes will be greater than in the first go-around.

Buildings on autopilot?

How will today's buildings—which are more wired than ever, with their complicated nerve centers of HVAC, lighting, security, life-safety, and computing systems—be capable of meeting the new codes? The answer may lie in advanced control technologies. Specially designed building automation systems (BASs) are networks of sensors, switches, and actuators that are connected to a central "brain," which makes automatic adjustments to indoor temperatures, lighting levels, and other systems as indoor conditions change (as when people arrive and leave, or during lower occupancy on nights and weekends, and so on).



Though energy-management systems are common in most new commercial construction, and separate lighting-control technologies have arisen as well, the new codes may demand better performance than current off-the-shelf systems are capable of delivering—particularly for renovations. Furthermore, improving "plug-and-play" operation of controls equipment is making design and installation of BASs less complicated.

Some owners already know that it pays to automate. The Pentagon, for instance, has been installing a specially designed BAS that will save more than $5 million a year in energy costs [RECORD, February 2003, page 100], and universities such as Cornell have long used their own buildings to deploy and test BAS technologies.

What does this mean for architects? Besides getting a handle on the new codes (see sidebar), it might be time for a sit-down with an engineering outfit knowledgeable about BASs. Grasping the basics of their implementation isn't difficult—and, with energy codes poised to change, future clients will benefit from your technical know-how. ■

Lindsay Audin writes frequently for RECORD about energy issues and lighting technology.

For more information on technology for architects, including reviews, vendor lists, and links, go to Digital Architect at **www.architecturalrecord.com**.

Online resources for energy-code changes

Visit the Web sites below for more information on ASHRAE 90.1-1999, as well as technical information and state-compliance issues.

www.ashrae.org—Copies of ASHRAE standards (electronic and paper).
www.energycodes.gov—DOE's homepage for building energy codes.
www.energycodes.gov/web_tools.stm—Tools for implementing new codes.
www.naseo.org—The National Association of State Energy Officials.

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BRIEFS

Lord Norman Foster and interior designer David Mlinaric joined forces to design the New York City flagship of Asprey, another luxury retailer that is expanding its range of products to include ready-to-wear and home and fashion accessories. A contrast to the dated 1980s marble and gold look of the adjacent Trump Tower atrium, the 20,000-square-foot space places 18th-century antiques and mahogany shelves lined with leather-bound volumes against waxed plaster walls and a grand staircase paved with limestone. **In London, Asprey** reteams Foster and Mlinaric for a store that debuts this spring. Part of the A&G Group, Asprey's sister jeweler, Garrard, opened a new store in London in September 2003.

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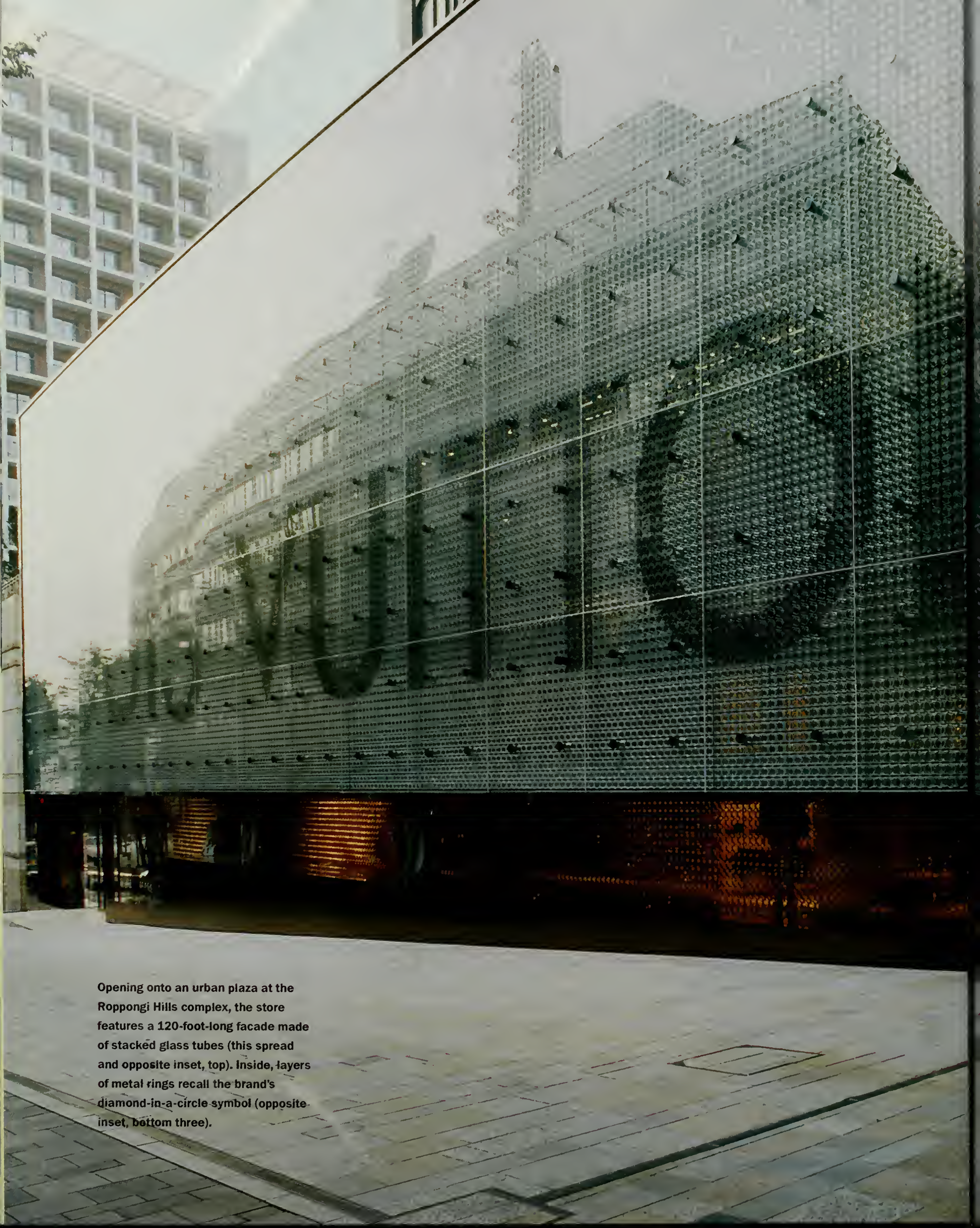
From Barcelona to Berlin, Milan to Moscow, Bisazza has reinvented the way it sells tile. Rather than displaying mosaics and other samples in straightforward showroom settings, the Italian manufacturer decided four years ago to make the interior architecture of its new locations more of the marketing strategy. Bisazza enlisted designer Fabio Novembre—known for his splashy work with tile for fashion designer Anna Molinari and the Milan club Divina—to create colorful sales environments sparkling with miles of tile. The company also shrewdly elevated its image with consumers by selecting new prime locations with a strong street presence.

To launch its New York City flagship (below), Bisazza secured a storefront space on a chic block of SoHo's Greene Street. Twenty mosaicists traveled from Italy to cut and install tiles. And with other Italian design companies huddled along the same strip, it knits together a mini Milan furniture fair of sorts.

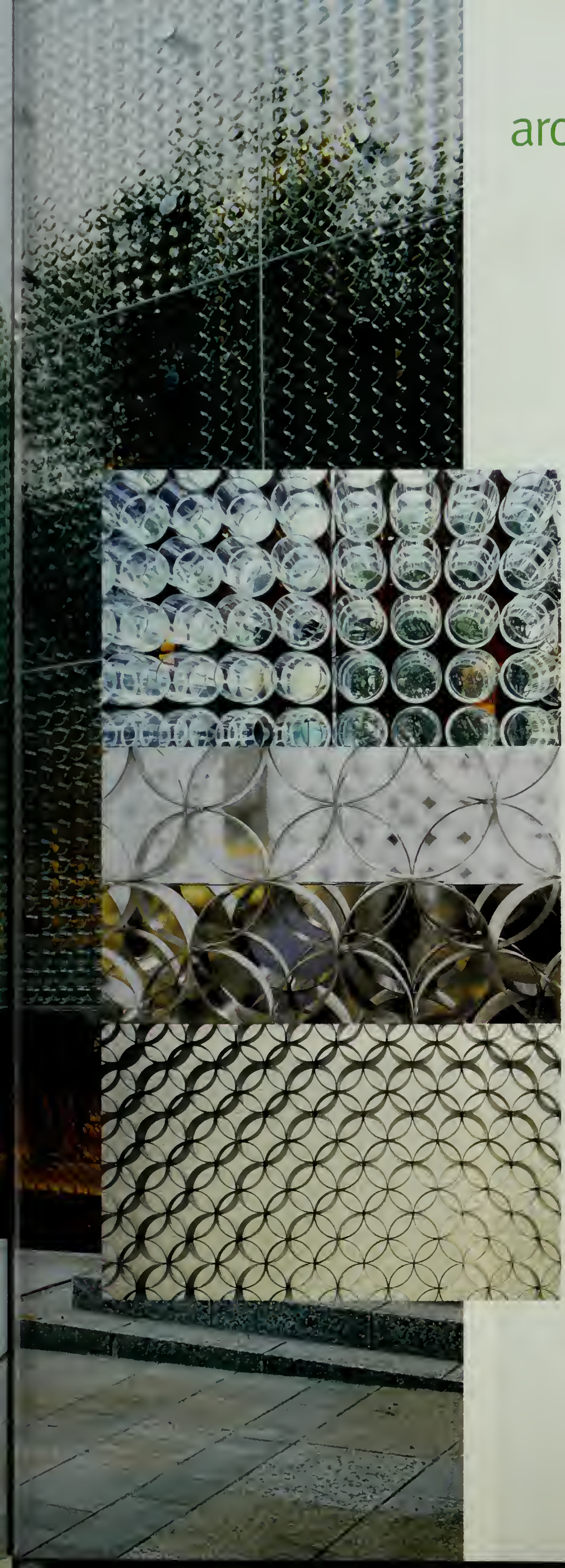
As Louis Vuitton celebrates its 150th anniversary in 2004, the luxury goods purveyor is performing a similar global makeover. A new store is being unveiled on New York City's Fifth Avenue this month, the first shop in Saudi Arabia has opened, and the original salon on the Champs Elysées in Paris will be enlarged and redesigned by year's end. A good example of Louis Vuitton's new architectural dynamism is the Tokyo location reviewed here, orchestrated by collaborators Jun Aoki, Aurelio Clementi, and Eric Carlson.

Offering moderately priced women's apparel and accessories, Los Angeles–based retailer MaxStudio.Com has created a consistent look for more than 50 new stores on main streets and in malls across the country. Versatile display components designed by architect George Yu creatively adapt to varied sites.

Back in New York City, after a short walk west from Bisazza to the Tribeca neighborhood, one encounters the sublime. A retail store and showroom built by Leven Betts Studio, Sublime American Design offers a wonderfully curated collection of home furnishings made in the U.S., from newly licensed Richard Neutra masterpieces to contemporary furniture handcrafted by hivemindesign in nearby Brooklyn. It's a light-filled showcase for domestic design at its best. *William Weathersby, Jr.*



Opening onto an urban plaza at the Roppongi Hills complex, the store features a 120-foot-long facade made of stacked glass tubes (this spread and opposite inset, top). Inside, layers of metal rings recall the brand's diamond-in-a-circle symbol (opposite inset, bottom three).



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An international trio of architects collaborates to give **Louis Vuitton** a new high-tech face in Tokyo

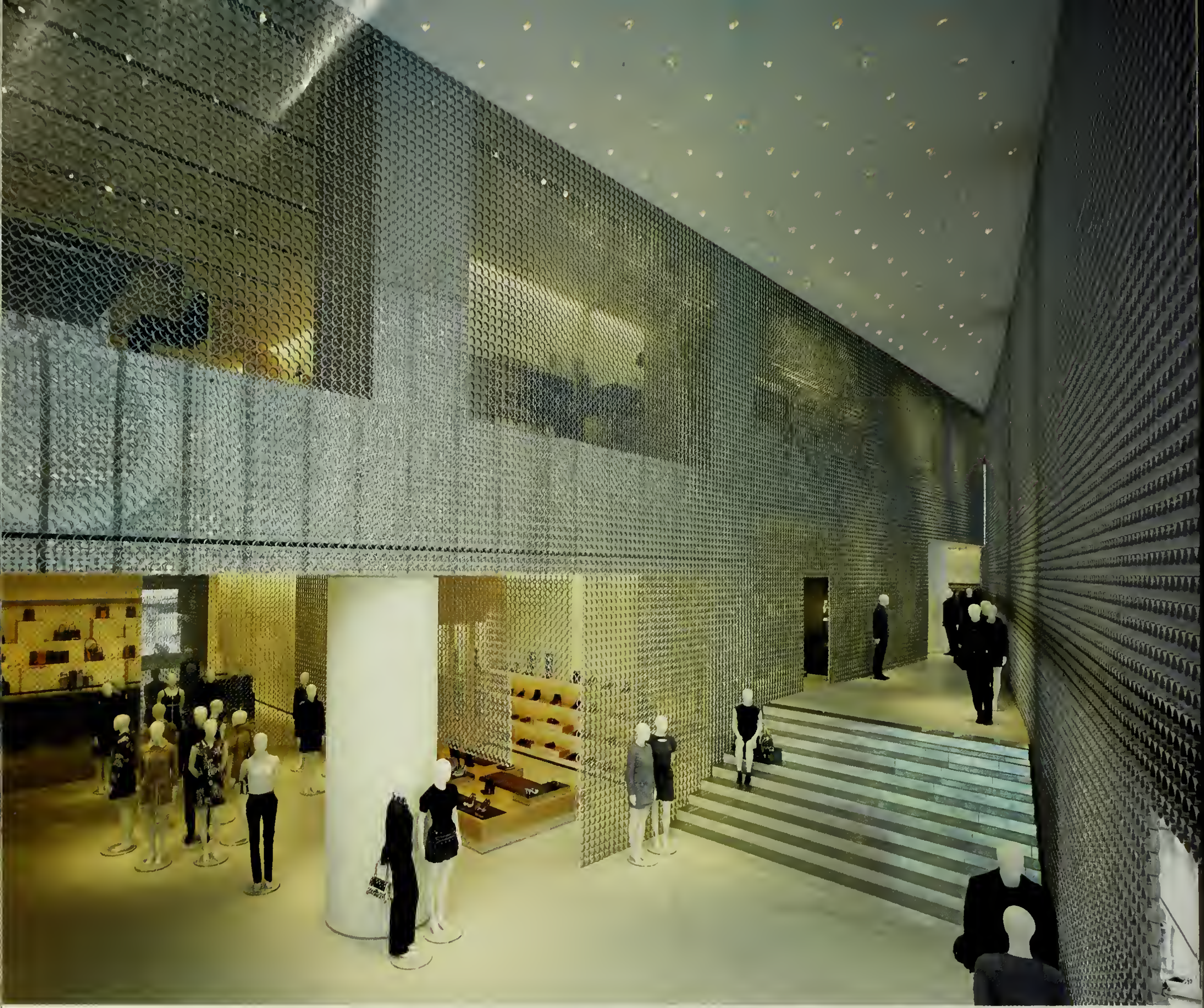
By Clifford A. Pearson

Since 1999, when it opened a radically new store in Nagoya, Japan, Louis Vuitton has been busy reinventing itself, turning a venerable, somewhat stodgy brand into an ultra-hip object of consumer lust. To execute this transformation, the company has used the architecture and design of its shops as a primary instrument, and Japan as its most important laboratory. With the opening last September of its 9,700-square-foot store at the Roppongi Hills mixed-use complex in Tokyo, the company has shown how far it is willing to push the retail envelope to explore new ideas of materiality, transparency, and display. Now Vuitton is applying what it has learned in Japan to stores back home in Europe and the United States.

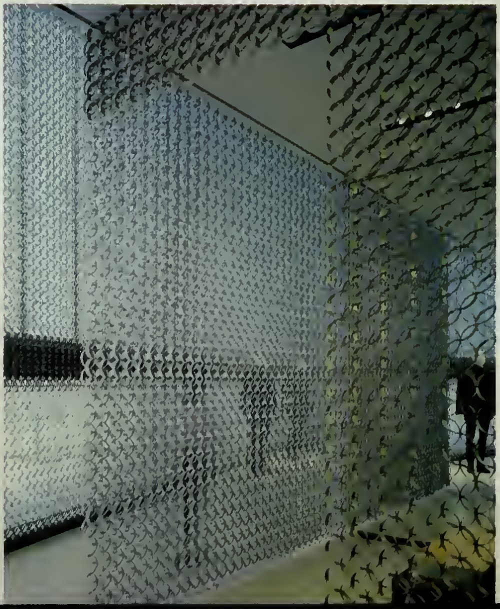
Like some of its other new outlets, the Roppongi Hills venue brought together the talents of designers in far-flung parts of the world: Jun Aoki in Tokyo, Aurelio Clementi in Italy, and Eric Carlson, who led the company's design group in Paris until he opened his own firm this year. Aoki (who designed the Nagoya store, several others in Japan, and a new flagship location opening this month in New York City) and Clementi are part of a loose stable of talented young architects that Louis Vuitton has employed in recent years. (Others include Kengo Kuma, who recently completed an office building in Tokyo for the company; Kumiko Inui, who once worked for Toyo Ito; and David McNulty, who works with Carlson in Paris.) Instead of parceling different tasks, such as exterior shell, interior space planning, and display design, to the Roppongi Hills architects, the company asked the three of them to work together on the entire project. "It was a real collaboration," explains Aoki.

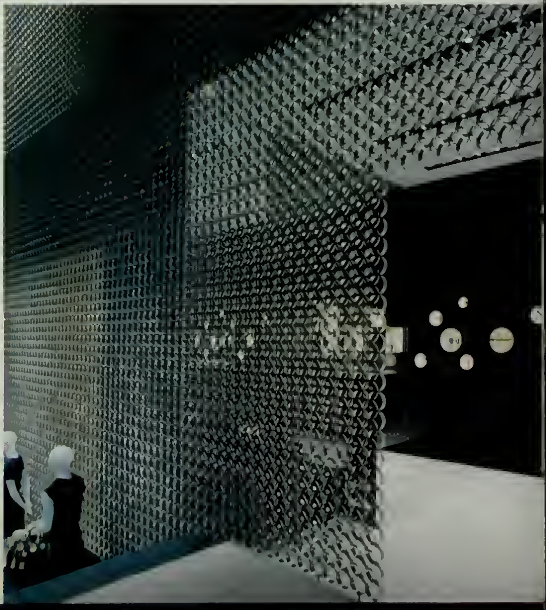
Although each new store serves as a unique expression, all address a set of common design goals and employ shared tactics. Perhaps the most obvious is the use of long-established Louis Vuitton symbols—its monogram, the checkerboard pattern identified with its Damier brand, a four-stemmed flower, and a diamond motif—as integral elements in the stores' design. At Roppongi Hills, Aoki and his collaborators incorporated the diamond and flower icons in a stunning wall of 30,000 horizontal glass tubes stacked like a honeycomb between vertical glass

Project: *Louis Vuitton, Roppongi Hills, Tokyo*
Architects: *Jun Aoki & Associates—Jun Aoki, Ryuji Nakamura; Louis Vuitton Architecture Department—Eric Carlson, Marie-Eve Bidard; Studio Aurelio Clementi—Aurelio Clementi, Irene Antolini, Cettina Schepis, Nestor Gonzalez*
Consultants: *George Sexton Associates (lighting); FLAME (graphics); Sun Design, Hiro Konoe (floor images); Nuno (fabric design)*
Interior contractor: *Takashimaya Space Create*
General contractor: *Shimizu*



The architects wrapped the store's "nave" with an interior skin of metal rings and glass (above) and hung the same materials from the ceiling to create translucent partitions (right and far right).





plates and a layer of perforated stainless steel. The idea was to create a "mirage," something that would be mysterious and shimmering, says Clementi. Stretching nearly 120 feet long and 43 feet high, the tubular-glass facade appears almost like a "pixelated screen," explains Carlson.

Since the store is part of a new $2.2 billion development with an eclectic array of buildings—including an office tower with an art museum on top [RECORD, January 2004, page 106], apartment buildings, shops, restaurants, and a headquarters for a television network (see page 88), the Louis Vuitton architects wanted the facade of their store to quickly set it apart from its much larger neighbors. "We designed it as an alien within an alien," says Aoki.

The designers' innovative use of materials addresses another of the common themes found in all of Louis Vuitton's new stores: setting facades in motion. At other locations, including the new flagship store in New York, Aoki applies shifted and overlapping Damier grids to layers of glass, creating fascinating moiré patterns that seem to dance as visitors view them from different angles. While each store has its own way with materials, all explore an architectural language of transparency and translucency that challenges established notions of indoors and out, solid and porous.

Inside the Roppongi Hills store, the designers clad the two-story-high space with a "skin" made of intersecting metal rings, again recalling the company's old symbols in a strikingly modern way. Veil-like partitions made from the same metal rings establish a sense of layering without blocking views through the space. Treating metal in this way, as if it were a fabric, creates an intriguing analogy between architecture and fashion, a strategy used at other Louis Vuitton stores, as well. At the one in the Omotesando area of Tokyo, for example, Aoki used large expanses of metal mesh as interior partitions and incorporated it in the building's facade.

THE DESIGNERS OF THE STORE ENVISIONED THE INTERIORS AS AN EVOCATION OF ROPPONGI'S ACTIVE NIGHTLIFE.

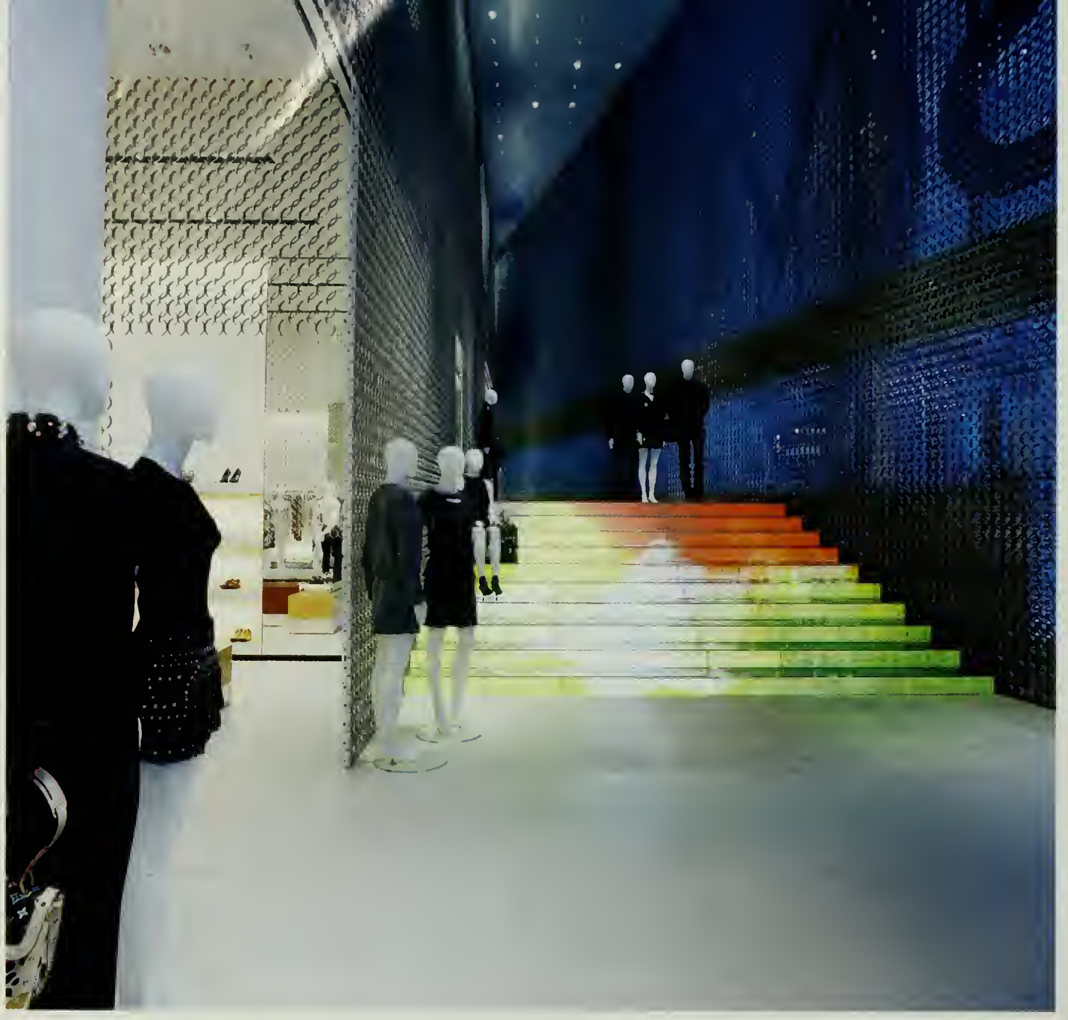
At Roppongi Hills, the designers envisioned the interiors as an

Creating a modern design vocabulary so a multinational brand can say many things

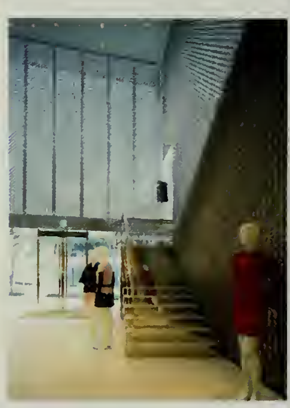
Multiplicity and brand identity are the key ideas driving Louis Vuitton's program of opening innovative stores worldwide. Although the concepts may seem contradictory, the high-end retailer of luggage, handbags, shoes, and leather goods has discovered that one-off store architecture can actually reinforce its image as a company concerned with quality and design. And by hiring young, edgy architects, the company has been able to expand its customer base to include younger, trendier shoppers.

Change in the company's approach to store design began in 1997, when it introduced ready-to-wear fashion and initiated a program of opening new outlets around the world. In 1999, it opened a store in Nagoya, Japan (below left), that presented a radically different face for Louis Vuitton. Designed by the Tokyo-based architect Jun Aoki, the store dazzled shoppers with a double glass skin whose misty appearance seemed to dematerialize the facade and set it apart from its chaotic urban context.

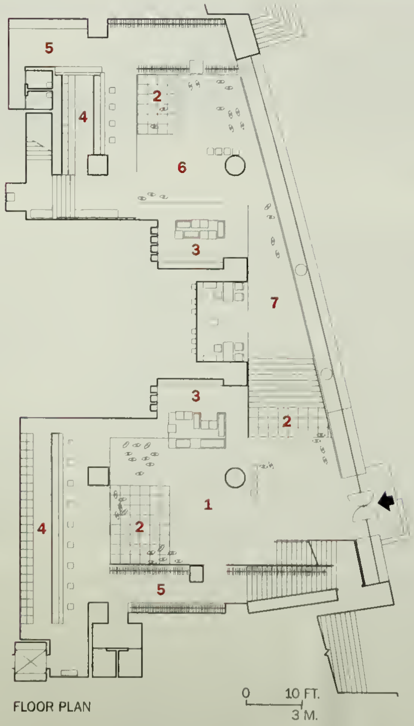
Aoki then designed a six-story building for Louis Vuitton on Omotesando Avenue in Tokyo (below center), playing on the company's origins as a luggage retailer to devise a scheme based on stacks of "trunks," double-height spaces that inform both the facade and the store's floor plans. His latest design is for a flagship store in New York City on Fifth Avenue and 57th Street (below right), where he has created another remarkable skin that challenges traditional notions of boundaries. The glass facade rises 11 stories to encompass the entire corner of a 1930s stone building, even though the store occupies just the bottom three floors. Varying the size of the Damier checkerboards applied to the skin's glass layers and the amount of their overlap, Aoki was able to blur the boundaries between opaque and transparent sections as well as between store and office floors.



On entering the store (below), shoppers encounter an interior that alludes to Roppongi's active nightlife, with parts of the floor equipped with fiber optics to evoke a dance hall (left), as well as bag "bars," luggage "lounges," and shoe "salons" (left in photo at left).



1. *Women's shop*
2. *Image floor*
3. *Shoe salon*
4. *Bag bar*
5. *Fitting/dressing*
6. *Men's shop*
7. *Unisex*



FLOOR PLAN

evocation of the area's famous nightlife. So they created "bars" for buying handbags, "lounges" for checking out luggage and leather goods, "salons" for shoes, and "dance floors" embedded with tiny fiber-optic lights that can generate moving images. They also installed MP3 jukeboxes on the first and second floors, where customers can download selected songs from a DJ mix playing in the store.

Organized like a dumbbell with the women's department at one end and the men's at the other, the store keeps its long axis mostly free of merchandise and furniture. Aoki calls this long, processional element the "nave" and says its spare, open space—punctuated only by a set of wide stairs and a series of mannequins—is perfect for special events. By keeping the nave free of all furniture and display cases and drawing attention both to the large scale of the space and to the detailed texture of the vertical surfaces, the store's designers eliminated almost all references to a medium scale. As a result, it has a dramatic quality quite different from traditional retail spaces filled with familiar objects such as chairs, sofas, and vitrines. Polished stainless-steel risers act as mirrors, dematerializing the stairs and adding another subtle layer to the spatial games at play here.

"WE WANTED THE STORE TO BE TRANSFORMABLE, SO IT COULD EVOLVE SEASONALLY OR EVEN DAILY," SAYS AOKI.

In the smaller spaces devoted to merchandise, the designers created more familiar environments using the palette of materials found in Louis

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Vuitton shops worldwide: anigre and wenge woods, leather, plaster, limestone, and teak. But in a break with the company's stores of the past 10 years or so, this one does not use furnishings designed by Peter Marino. Instead, the project's designers created a new collection of furniture, adapting the company's signature materials, such as brown leather, to more contemporary shapes. To reduce visual clutter, they treated display furniture and shelving as extrusions from the walls and floors. The simplified system of furnishings and product displays should allow greater flexibility in terms of merchandising, explains Aoki. "We wanted the store to be a transformable design, so it could evolve seasonally or even daily and reflect the pace of style," he adds.

Change is what Japan has been all about for Louis Vuitton, allowing the company to assume a younger, trendier identity and attract a new segment of the market. "You can push things a lot more in Japan, in terms of design and innovation," states Clementi. "What we've done in Japan is try to bring art, architecture, and fashion together in a way that hadn't been tried before." Taking what it has learned in Japan, Louis Vuitton is revamping its stores in other parts of the world, starting with its 18,000-square-foot location in New York this month and then pushing on to the Champs Elysées in Paris next year. ■

Sources

Lighting fixtures fabrication: *Yamagiwa*

Fiber optics: *NTT DoCoMo*

MP3 jukebox: *NTT DoCoMo*

Speaking picture: *Jerome Olivier*

Fabrics: *Nuno*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

Mirrored risers (above) help dematerialize stairs and add to a storewide strategy of floating space and suspending see-through partitions. The architects used traditional Louis Vuitton colors and woods to create new furniture and display cases in the leather-goods "lounge" (below) and handbag "bar" (top of photo below).

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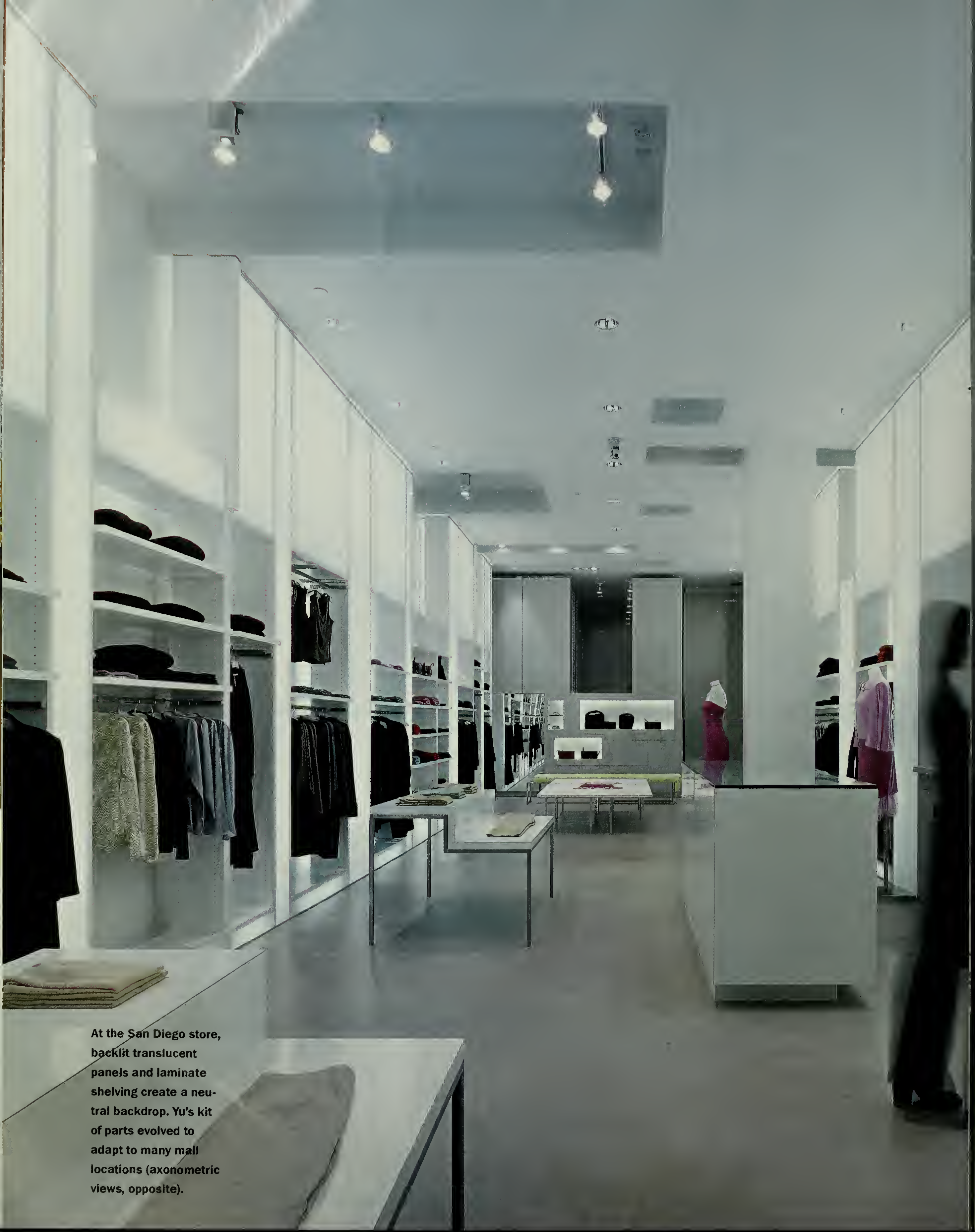


At the San Diego store, backlit translucent panels and laminate shelving create a neutral backdrop. Yu's kit of parts evolved to adapt to many mall locations (axonometric views, opposite).

George Yu creates a language of versatile components to fashion **MaxStudio.Com** stores across the country

By Leanne B. French

Six years ago, women's clothing designer and retailer Leon Max envisioned a major shift in strategy that relied on a revamped business plan supported by a new visual language for his retail environments. Max's long-range goal was to expand his Los Angeles–based fashion line with 70 new stores nationwide and to target the fledgling e-commerce market that inspired a name change from Max Studio to MaxStudio.Com. To refashion the chain's visual identity for this massive build-out, Los Angeles–based architect George Yu was asked to create a customer-friendly signature design that would unify the company's image at various retail sites of different sizes across the country, then take the branding beyond, into cyberspace.

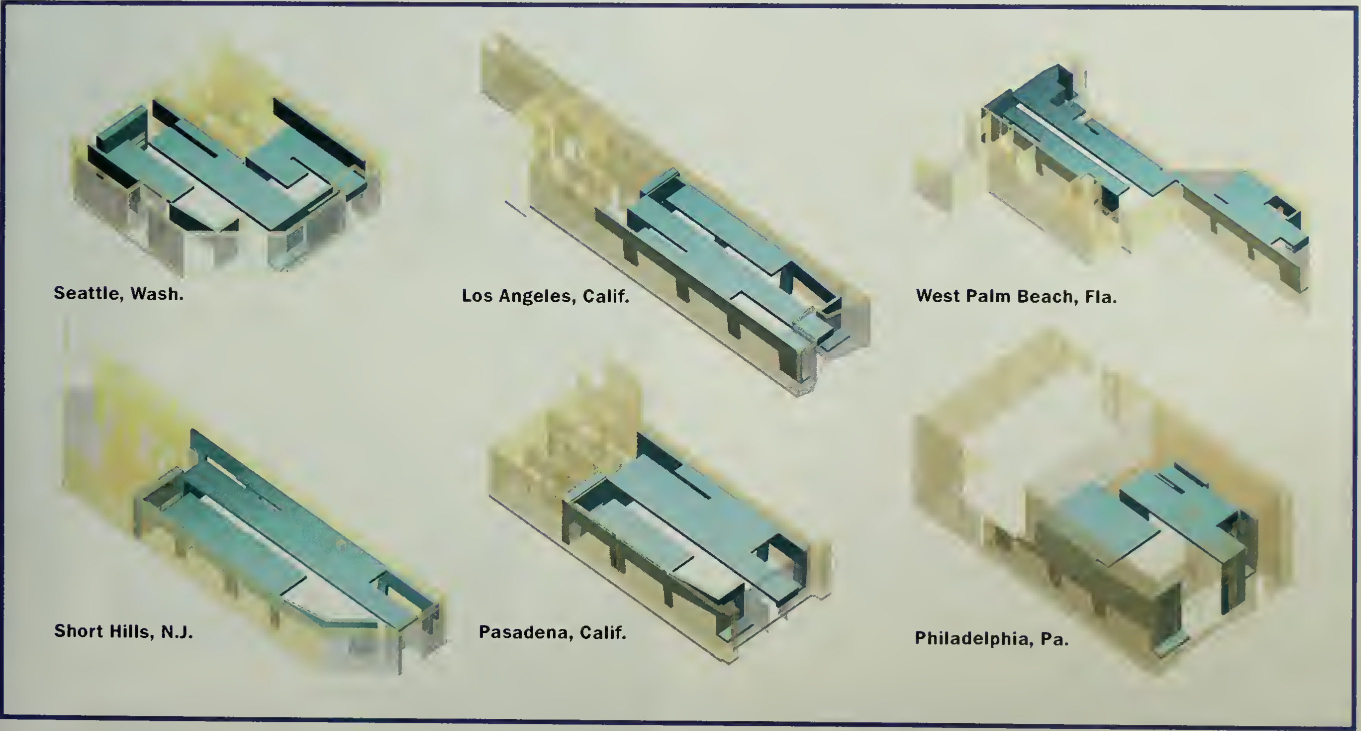
The architectural balancing act of creating a design vocabulary for the company that fit the generic specifications of various retail tenant spaces turned into a yearlong experiment that resulted in a luminous, white-clad interior. "One of the biggest challenges was making a prototype design that would be adaptable to 70 or so stores," says principal architect Yu, whose team included former principal designer Jason King and project managers Andrew Lindley, Sandra Levesque, and Israel Kandarian. "The client also required that we devise a system that was not only elegant and beautiful, but economical, to fit the store's fixed budget [around $150 per square foot]."

Leanne B. French is a freelance writer based in New York City. She is a frequent contributor to the interiors and lighting sections of ARCHITECTURAL RECORD.

Departing from the raw, industrial look of the store's early years in Los Angeles, the prototype design relied on a backdrop of cool, clean materials—epoxy-based terrazzo flooring, brushed stainless-steel racks, white plastic-laminate shelves and tabletops—which allowed the merchandise to take center stage. Incandescent lighting recessed in ceiling soffits and inside open-fronted display cabinets cast a theatrical play of light and shadow throughout the store, while the luminous focal point of the design was a light-box effect of translucent milky white Plexiglas walls backlit by fluorescents.

The prototype, retrofitted in a store in West Los Angeles and installed for the first time in San Diego, was well received by client and customers, according to Yu. "The store was very popular because it was so bright and people were drawn inside," he says. "The light-box effect was wonderful because there were no shadows, and customers look good when there are no shadows, but we could never get the system under

Projects: *MaxStudio.Com, various locations*
Architect: *George Yu Architects—George Yu, principal; Jason King, former principal; Andrew Lindley, Sandra Levesque, Israel Kandarian, project designers/managers; Gavin Farley, Barry Jacob, Leslie Barrett, Pierre Gendron, Se Young Choi, Steve Slaughter, Chris King, Toshi Nagura, Robert Fabianjiak, designers*
Engineer: *Thorson Baker & Associates; Hi-Tech Engineering*
Graphic design: *Alexei Tylevich*



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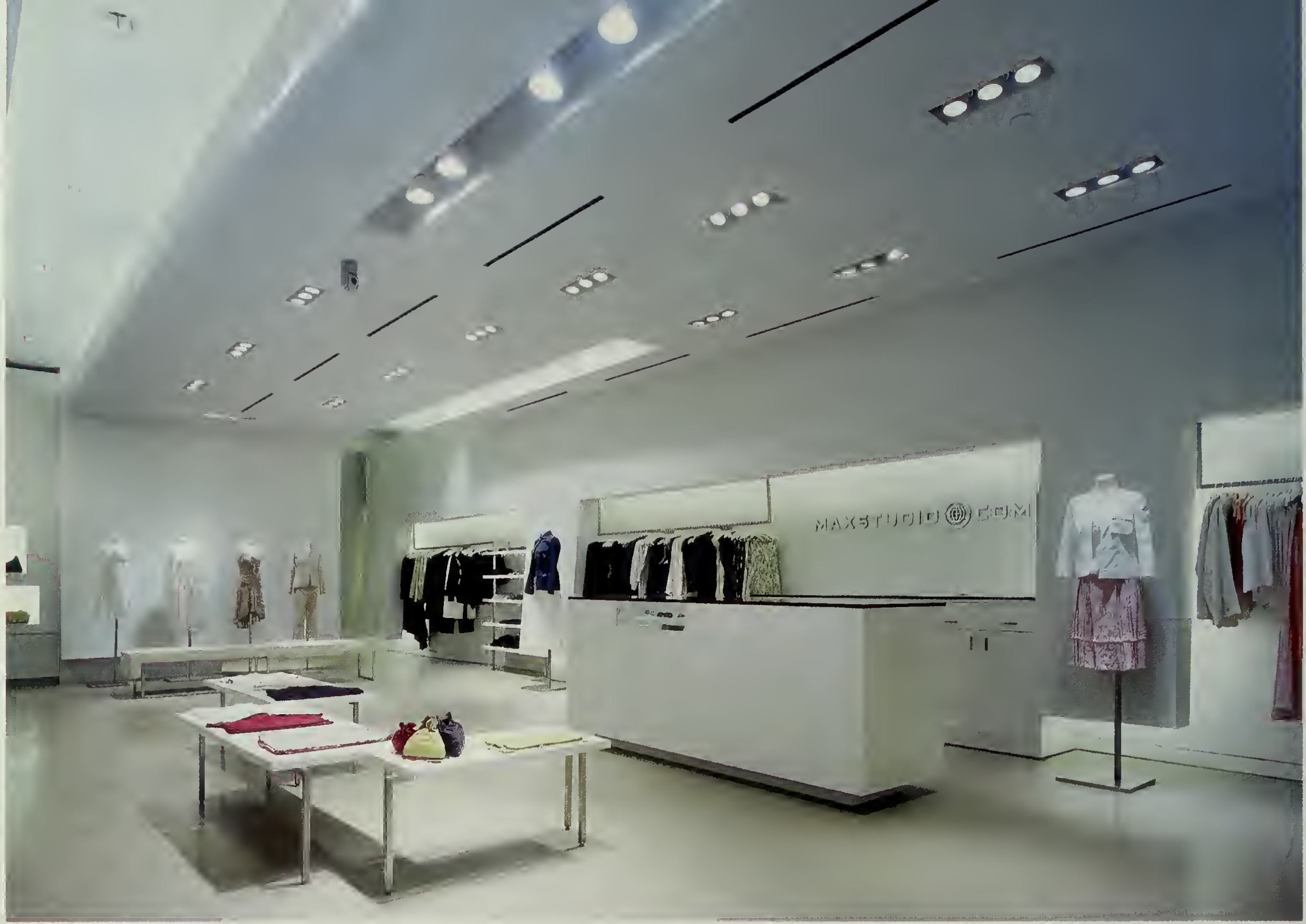
Los Angeles, Calif.

West Palm Beach, Fla.

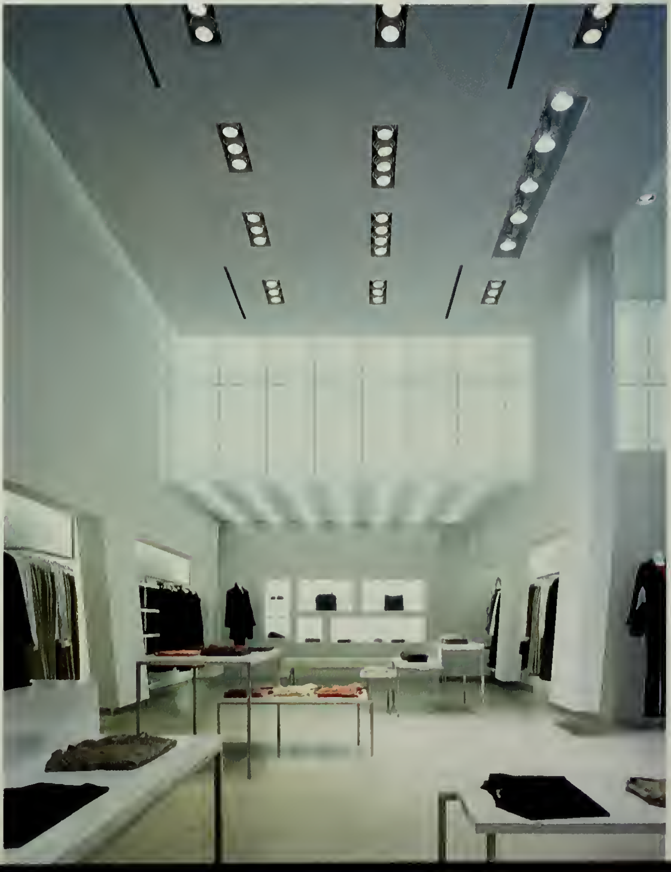
Short Hills, N.J.

Pasadena, Calif.

Philadelphia, Pa.



The Philadelphia store's light box (right) glows above epoxy-resin floors. The custom-fabricated display units in the Pasadena store (above) allow quick-change flexibility with a minimum of parts and assembly.



budget because the installation and operation of the lighting turned out to be very costly."

With the client's blessing, the architects readdressed the design and, while most materials were not lost in translation, the costly light-box effect was replaced with a "box within a box" design. The new concept involved a contiguous floor-to-ceiling wrapper of cutaway display cabinets and soffits that could be easily adapted and inserted into various retail locations. Constructed of cost-effective dry wall and steel studs, the wrapper is illuminated internally by fluorescent tubing that can be conventionally installed between layers of the wrapper. The redesign also requires fewer lighting fixtures, but doesn't skimp on atmosphere, casting its own captivating glow between the inner and outer skin of the wrapper.

Since 1998, the "box within a box" brand design has been adapted to 50, 2,000- to 3,000-square-foot stores nationwide, with plans to open another location in Santa Monica this spring. Four more domestic outlets will open this year, plus six more abroad, primarily in Asia. While the wrapper design is manipulated to individual site conditions, fixtures, lighting, and floor displays are consistent to convey a cohesive brand identity from store to store.

Beyond MaxStudio.Com's retail interiors, the architects also conceived an Internet presence with the design of an e-commerce kiosk.

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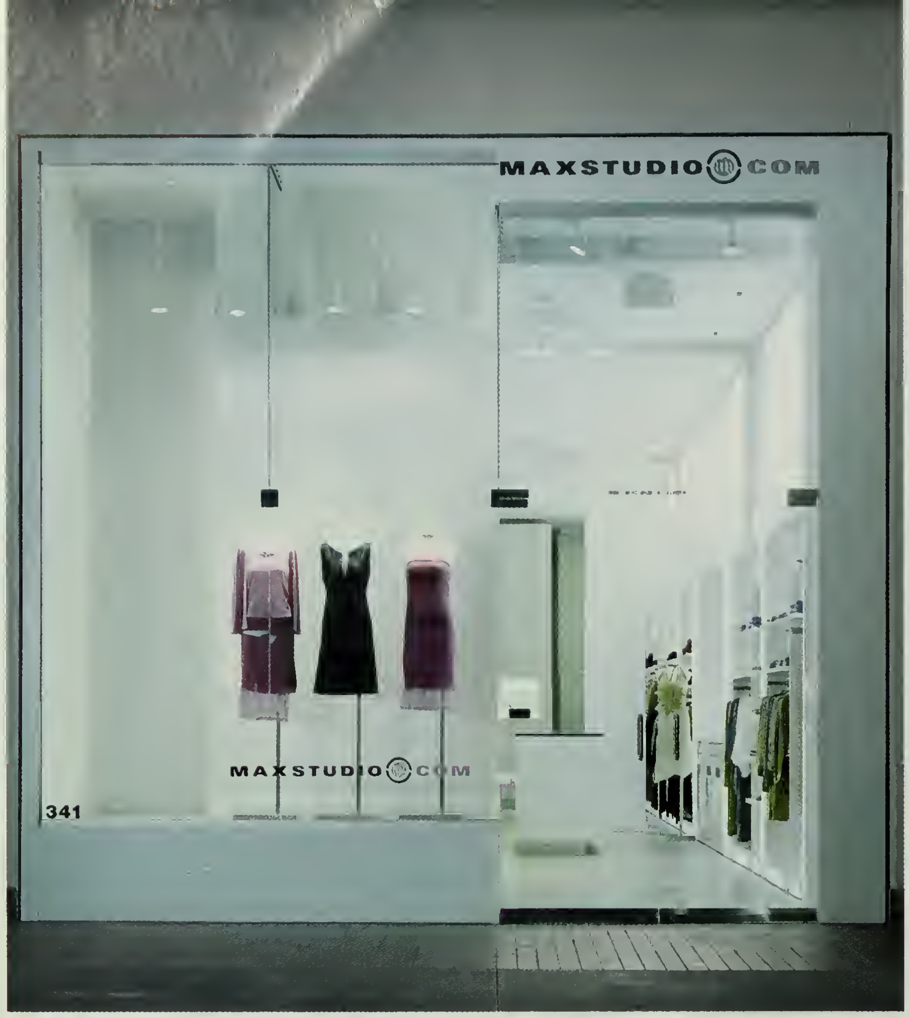

The facades of most MaxStudio.Com stores, such as the one in San Diego (left), feature steel-edged glazing and doors. Illuminated vitrines and soffits seem to float within the shell (bottom). A kiosk (below) adapts aerospace fabrication for Internet sales.

Once again, the team played with the idea of luminescence, collaborating with an aerospace design company, Performance Composites, to craft a glowing monolithic form that complements the brand design and encourages customers to purchase items virtually. "When we first visited the [Performance Composites] shop, there were ejection seats for F-18 fighter bombers lying around," Yu remembers. "They specialize in high-tech composite materials, but we asked them to do something unique for the kiosk—develop a technique for making parts out of translucent, fiberglass-reinforced resin with an integral color in the material that could then be sprayed into reusable molds."

While forging the visual identity for Leon Max's business vision (including plans for a 100,000-square-foot headquarters), Yu has also devoted the past four years working on his client's personal dream, designing a circular hillside villa in Malibu that is scheduled to begin construction this year. ■

Sources

Fixture fabrication: *Orion Retail Services and Fixturing; Builders Furniture*

Glazing: *National Storefront Glass*

Hardware: *Schlage; Dorma; Forms + Surfaces*

Acoustic ceiling: *USG*

Flooring: *Floor Technology Group*

Paint: *Sherwin Williams*

Paneling, laminates: *Abet Laminati*

Translucent surfacing: *KB Manufacturing*

Lighting: *Lightolier; H.E. Williams*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

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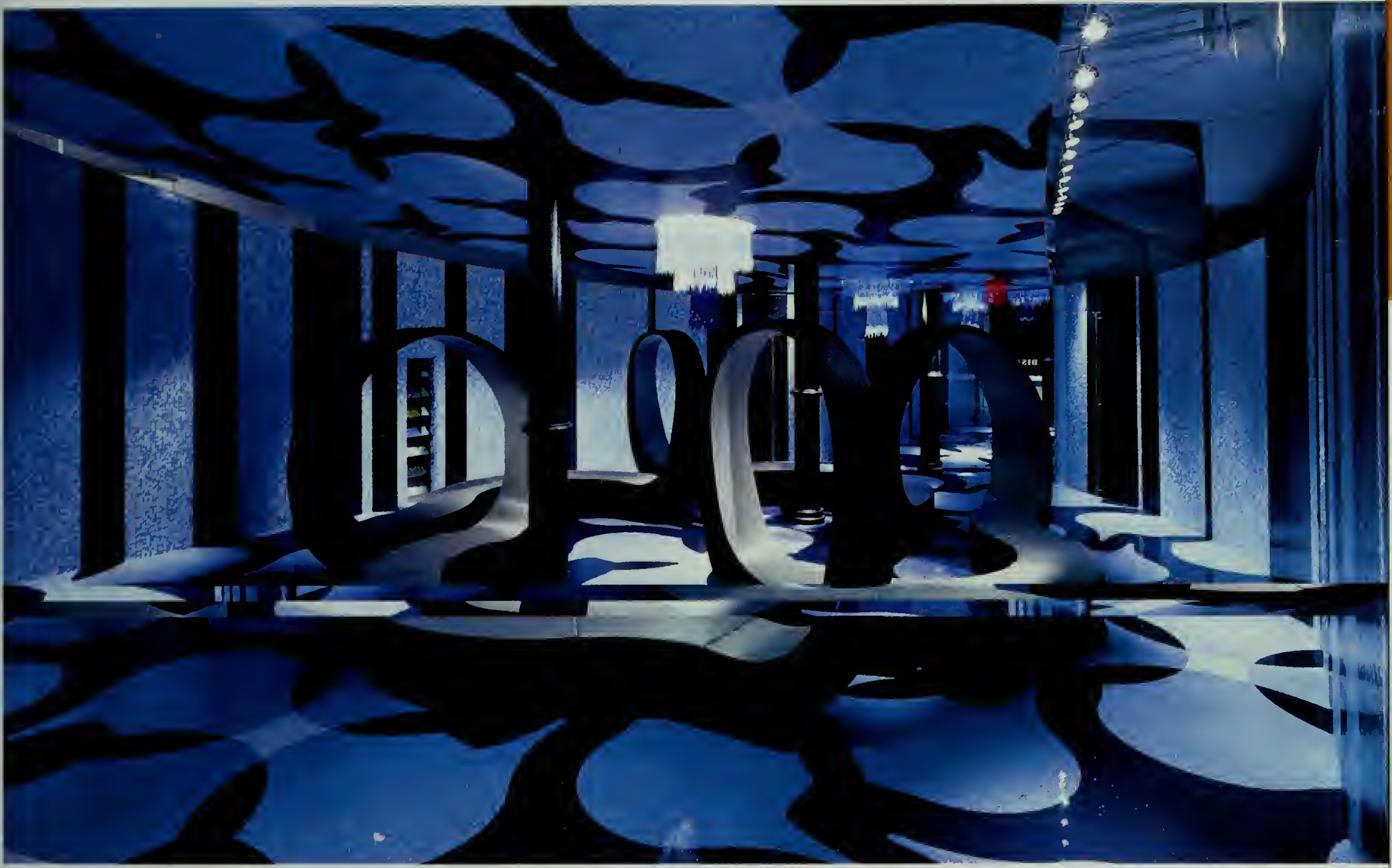
Fabio Novembre wraps a SoHo loft with curves clad in mosaics for the new **Bisazza tile showroom**



By John Peter Radulski

With virtually every sinuous surface covered in mosaics, the new showroom for Bisazza tile in New York City's SoHo is a selling tool in itself. Conceived by Milanese designer Fabio Novembre with architect Ellen Honigstock, the 3,500-square-foot space creates an arresting street-level presence. Joining other Italian design brands—including Artemide, Boffi, Flou, and Kartell—on the same block of Greene Street, Bisazza aims to broaden consumer awareness while serving the professional design community.

The flagship is among the latest in a three-year rollout of new Bisazza showrooms directed by Studio Novembre in locations including Milan, Madrid, Barcelona, Berlin, and the manufacturer's home base of Vicenza, Italy. Bypassing the conventional arrangement of most tile centers, which typically present mock-ups of bathrooms and kitchens alongside racks of sample books, the new Bisazza sites are immersing fantasy environments showcasing Novembre's flamboyant use of mosaics.

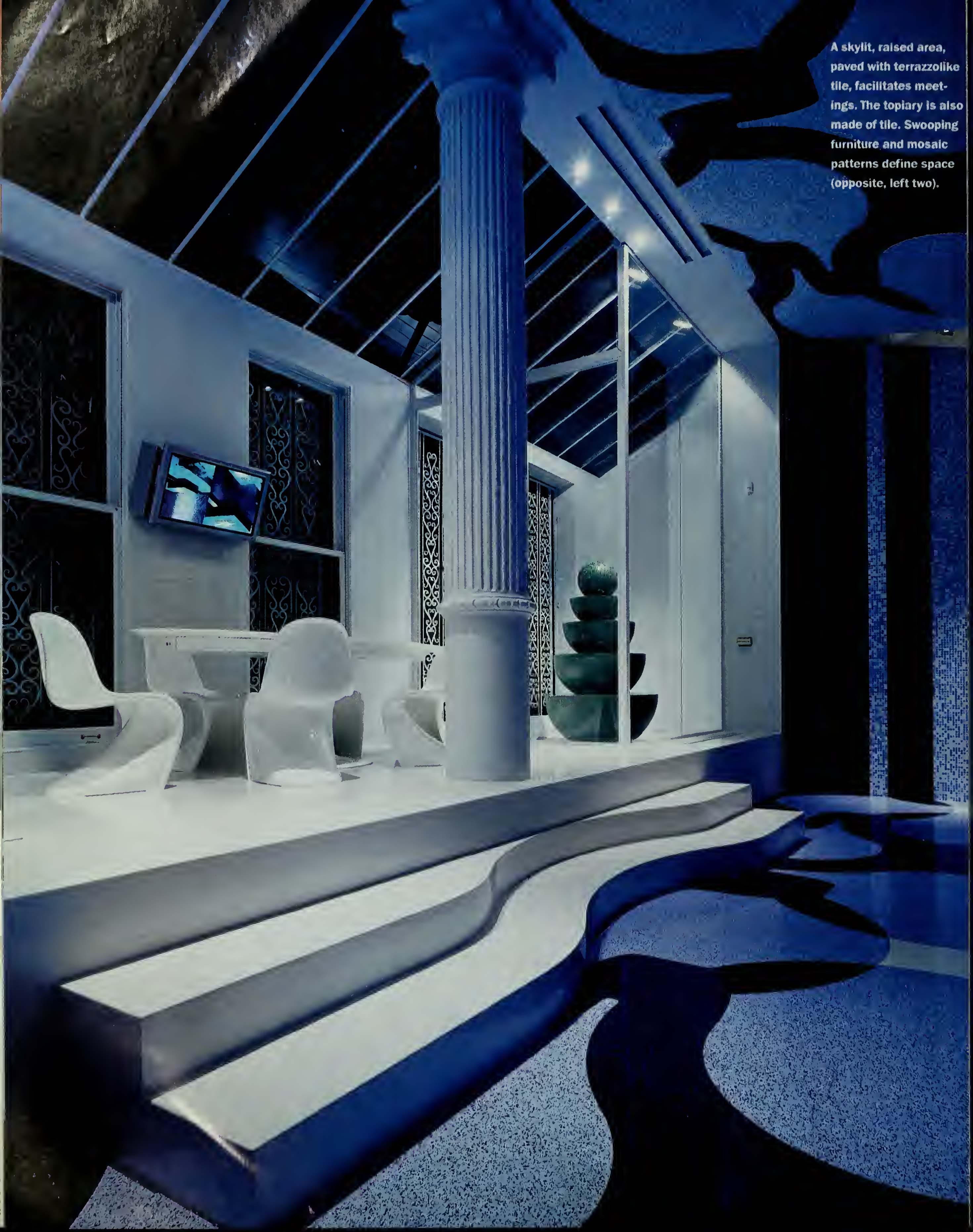
The new showroom creates a streetside presence (left) with views of its shimmering tile surfaces (above).

Set within the envelope of an 1874 brick and cast-iron building, the SoHo showroom's ribbonlike forms and shimmering surfaces are a visual tour de force. Novembre says he wanted "to take Palladio to New York and filter him through a psychedelic lens." While a connection to Palladian virtues may be lost on many visitors, a sense of symmetry and chiaroscuro contrasts enliven the space.

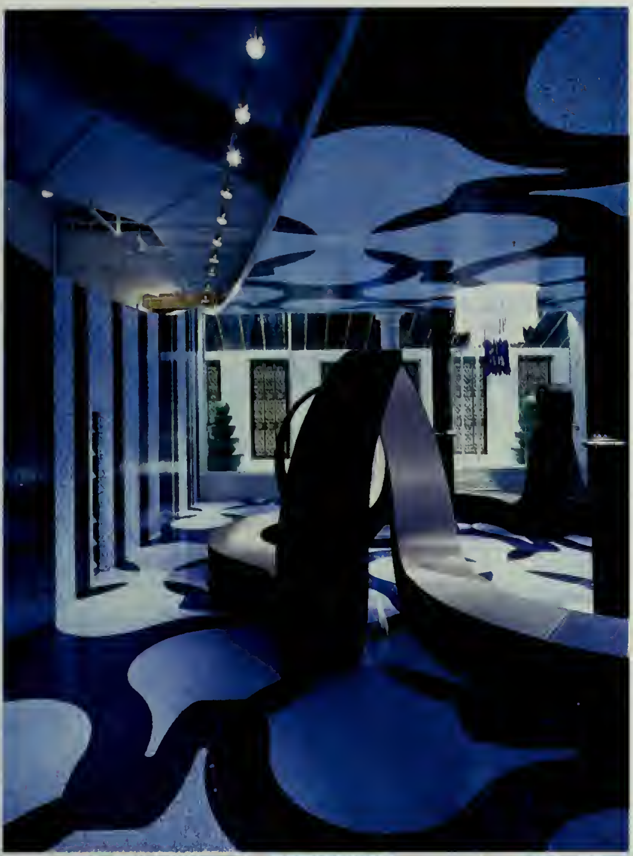
Novembre has overlaid the rectangular footprint with one that approximates the shape of a wine glass. From the entrance, the symmet-

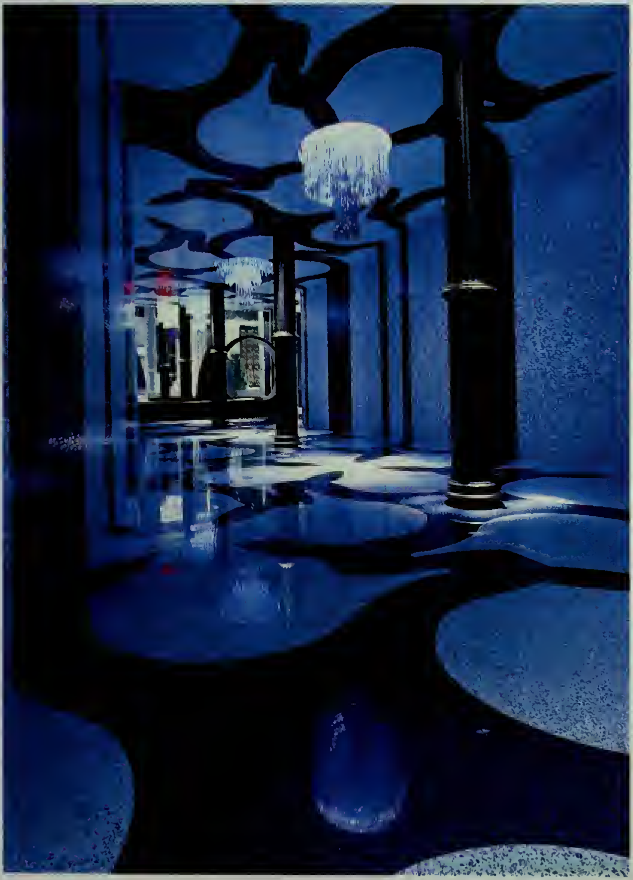
John Peter Radulski is a freelance writer and editor based in Westport, Conn. He is a frequent contributor to ARCHITECTURAL RECORD.

Project: *Bisazza Showroom, New York City*
Principal designer: *Studio Novembre—Fabio Novembre, principal*
Architect of record: *Ellen Honigstock Architect—Ellen Honigstock, principal; Aileen Iverson, project manager*
Mechanical engineer: *Matthew K. Bendix*



A skylit, raised area, paved with terrazzolike tile, facilitates meetings. The topiary is also made of tile. Swooping furniture and mosaic patterns define space (opposite, left two).





Novembre also employed graphic tile patterns in Bisazza's new Berlin showroom, which opened last fall (above and top).

rical concave walls narrow and then their curves expand outward to the back of the showroom. Overhead, a dropped ceiling slowly bows from the entrance height of 16.5 feet to 10 feet at the main room's midpoint, then rises back up at the rear. Six original cast-iron columns, all but one newly painted black with gilded trim, define the longitudinal axis.

The walls are sheathed in .4-inch-square glass tiles arranged in rectilinear patterns that alternate between predominantly black and blue, with darker areas echoing the structural columns. The ceiling, also faced with .4-inch-square tiles, displays an abstract, curvaceous pattern. On the floor, sheets of Bisazza's black and white, terrazzolike aggregate glass and polyester resin tile mirror the ceiling pattern. Modular seating designed by Novembre and upholstered in black and silver fabric can be arranged in a variety of configurations; its loop-the-loop design links visually to the floor and ceiling decoration.

Heading construction administration with Ellen Honigstock, project manager Aileen Iverson explains that installing new HVAC systems was a complex aspect of the renovation. Window-mounted air-conditioning units were replaced with a new system, and "cooperative apartments on the upper floors of the building required that there be zero vibration and noise." The solution was to run narrow, 6-foot-tall ducts between newly built interior walls and the existing brick walls.

A pair of apertures, each 7 feet tall by 15 inches wide, at the rear of the showroom showcase product lines. A total of 500 1-square-foot sample boards are mounted on automatic moving walls. An enclosed 434-square-foot office is tucked to one side of the showroom, opposite a break room and restrooms. These three areas all feature walls and floors covered with the company's tile in a basket-weave pattern, another opportunity to display creative design solutions to customers. ■

Sources

Tile: *Bisazza*

Lighting: *Bega; Galleria Jacopo Foggini; Griven; Modular International*

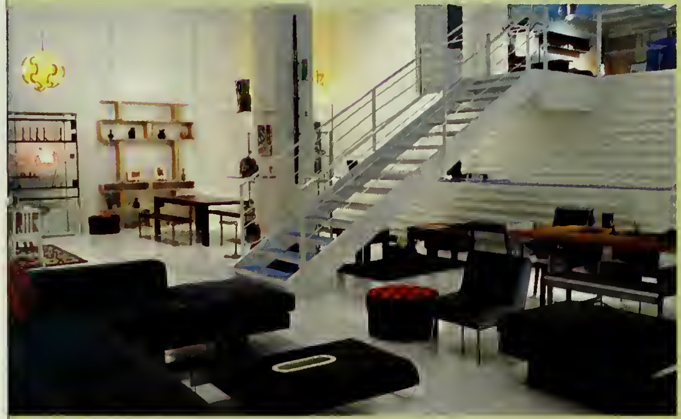
Furniture: *Studio Novembre; Cappellini; Knoll; ICF; Vitra*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

Two furniture afficionados commission Leven Betts to capture the spirit of **Sublime American Design**

Richard Neutra's 1942 Boomerang chair is a limited-edition reissue.

With their simple rectilinear forms and rounded edges, the components of the Worm wall system designed by Ladislav Czernek can be stacked in customized patterns.



The showroom employs abstract stars and stripes as a sublime backdrop.

Rama Chorpash's rug depicts the topography of Central Park.

The interlocking, three-section sofa was designed by Rick Lee for Sublime.

By William Weathersby, Jr.

Sublime is a tricky description for contemporary furniture and accessories. Whether a piece is judged sublimely beautiful or instead a short step away from the ridiculous is a verdict that rests in the eye of each connoisseur. A new retail store and showroom in New York City's Tribeca district, however, recently opened under the audacious banner Sublime American Design, presenting a collection of furnishings devoted to both emerging and established homegrown talent. (Just don't call it S.A.D.) The brainchild of partners Arthur Julian and Uri Litvak (who also helm a culture-oriented advertising and marketing firm called looklab), the store evolved from their shared lifelong passion for singular, spirited design objects. Leven Betts Studio designed the three-level, 3,300-square-foot space to showcase the work of more than 50 artists in a sunny, loftlike setting. Subtle stripes and distorted stars punctuate the white walls and ceiling, the architects' homage to the paintings of Jasper Johns and Agnes Martin.

Among Sublime's roster of standout designers are Minimalist Elizabeth Paige Smith, ready-made experimenter/architect Alejo Ruocco de Luca, and ironists/architects Boym Partners. Groundbreaking classic pieces include R.M. Schindler's 1922 furniture created for his Los Angeles home (reproduced under license by Los Angeles architects Marmol Radziner) and Richard Neutra's midcentury Boomerang chairs. For more information and furniture images, go to www.sublimeamericandesign.com. ■

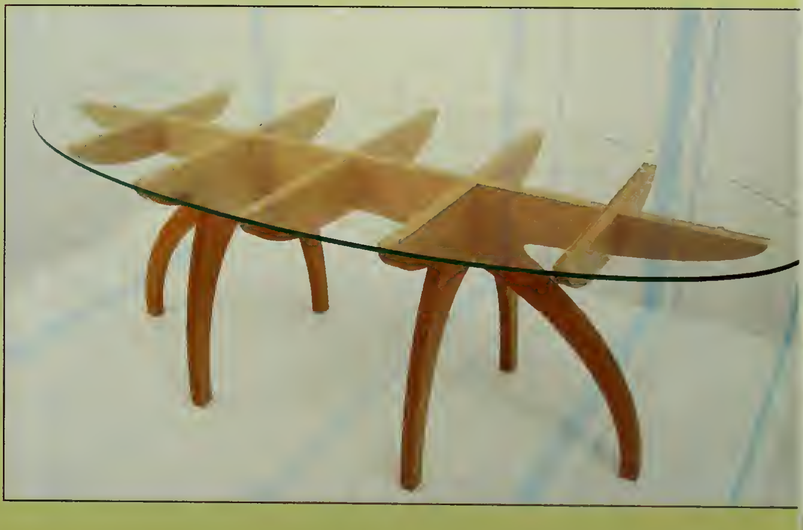
Colorful lamps by Henry Allen (shown on stairs, above) meld layers of molded rubber.

Elizabeth Paige Smith's table seals powder in acrylic.

The Diaper chair by Jeff Miller has a polycarbonate seat on a metal base.

tew Design Workshop's Petal chairs are made of plywood.

A table by Ali Tayar is built of lacquered MDF pieces assembled with slip joints.



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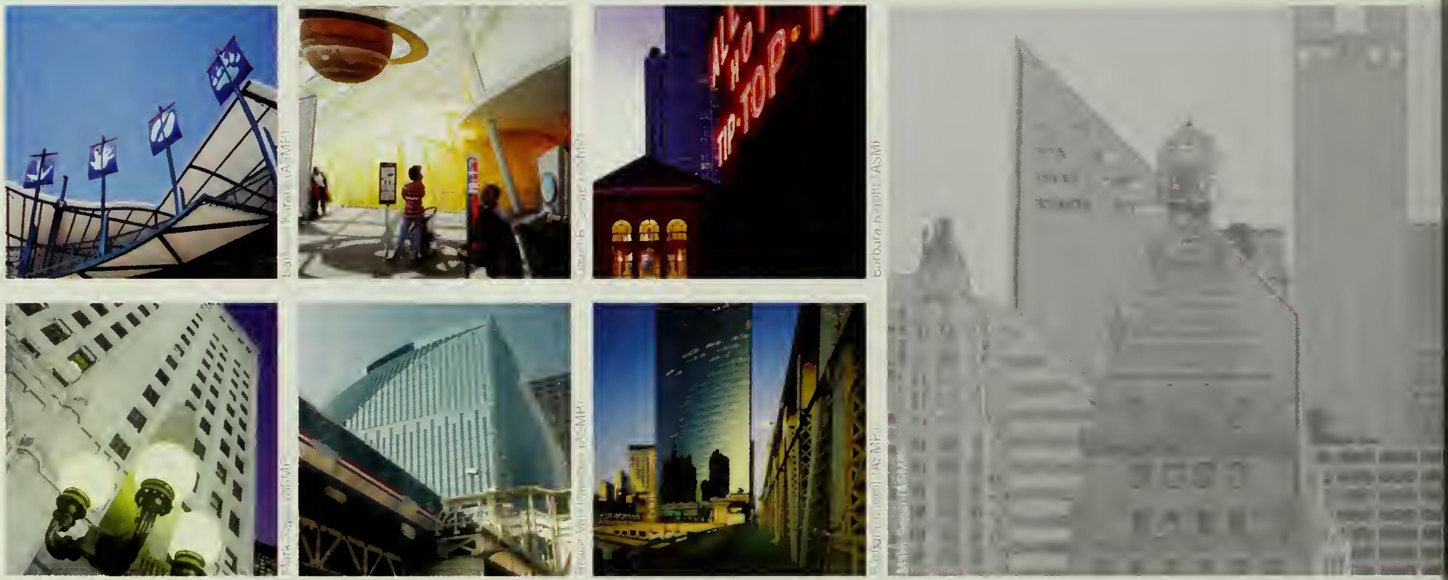

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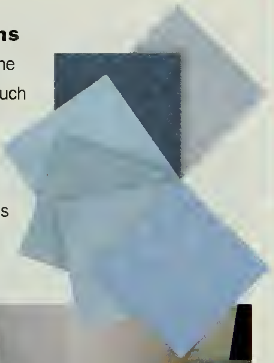
Interiors Products

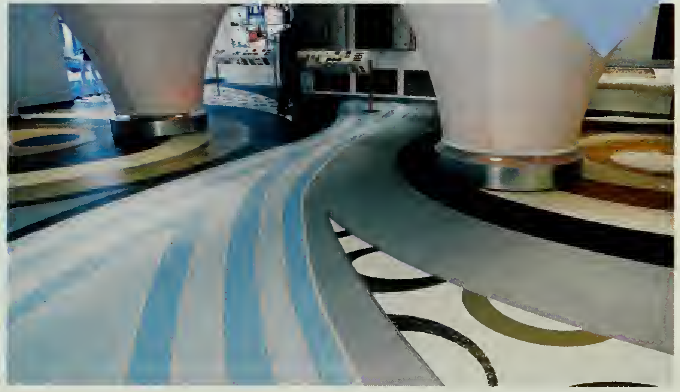
► First U.S. cast-glass tile

Crossville's new Illuminessence Glass for walls, floors, and countertops is the only cast-glass tile available in the U.S., according to the manufacturer. The program's three series are made of cast translucent glass textured front and back to capture and refract light. All of the tiles use a quantity of recycled glass and are available in nine water-inspired colors. Crossville Ceramics, Crossville, Tenn. www.crossville-ceramics.com **CIRCLE 200**

▼ New flooring showroom and collections

Amtico recently opened a 2,000-square-foot studio on the first floor of the New York Design Center. New products such as Aqua (right) are highlighted on the floor and display panels around the space. Inspired by Pop artist Bridget Riley, the 18" x 18" Aqua tiles use optical illusion, holographics, and the sheens of silks and brushed metals to offer a sense of movement and dimension underfoot. Amtico, New York City. www.amtico.com **CIRCLE 201**





▼ Expand your desking options

Expansion Desking, new from Teknion, is a line of freestanding, desk-based office furniture for multiple applications in the open-office environment. Desk modules are constructed using a structurally integral metal frame, to which desired components such as work surfaces, storage, element fascias, gables, and modesty panels are added. The system can be easily reconfigured as individual workstations, reception stations, or clusters of workstations. Teknion, Toronto. www.teknion.com **CIRCLE 202**

◄ More than skin deep

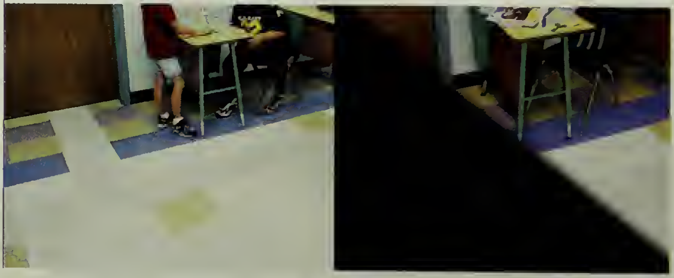
Surface, a division of the Toronto art studio Moss and Lam, offers a line of specialty interior wall coatings that combine raw elements such as silica, crystal, and titanium flakes with high-grade acrylics. The low-VOC-rated finishes come in a range of colors and in five styles (including Flint, shown). Recent applications include Tokyo's Four Seasons Hotel and the Detroit Symphony Hall. Surface, Toronto. www.surfaceinteriors.com **CIRCLE 203**

► From Saville Row to your couch

After British fashion designer Paul Smith adopted various Maharam archival textiles for his menswear collection (he selected the whimsical I Morosi alla Finestra for a jacket lining), the firm invited him to add his lighthearted take on traditional British tailoring to a line of seating upholstery. Bespoke Stripe is a collection of classic menswear fabrics designed for seating applications, and features a seemingly random pattern of multicolored stripes. Constructed of 100 percent wool, the textiles meet all contract performance requirements. Maharam, New York City. www.maharam.com **CIRCLE 204**

▼ The path to safety

StoneGlow floors, from Azrock by Tarkett, incorporate photoluminescent chips, dispersed evenly across the tiles, which absorb and store light energy. In normal lighting, the floor is an unobtrusive and integral part of the overall interior design, but in dark or smoke-filled conditions, the energy absorbed by the chips emits a bright glow and provides a lighted footpath for up to 2 hours. Tarkett Commercial, Houston. www.azrock.com **CIRCLE 205**



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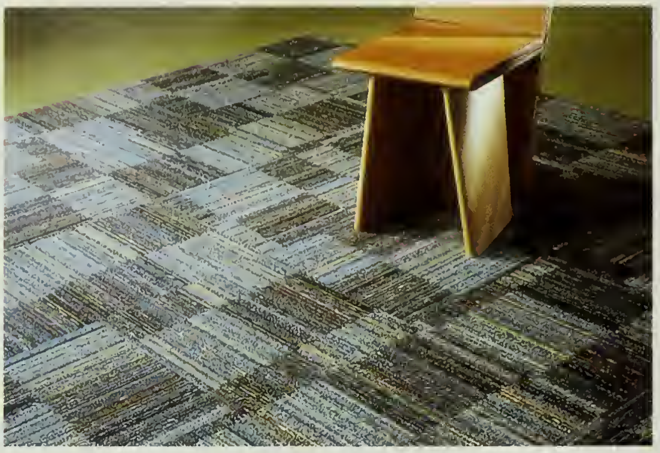
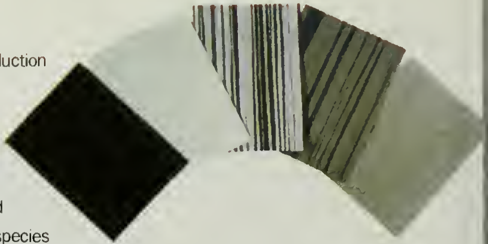
Interiors Products



▲ Postproduction nylon yarn carpets

Mannington Commercial has introduced two new modular products to the ArtCraft Collection: String Works, a linear pattern, and Modern Primitive (shown), a large, random check pattern. The ArtCraft technology process uses color upon color with 100 percent postproduction nylon yarn (that in the past may have been sold or downcycled) in random combinations. The products can be installed in various modular configurations. Mannington Commercial, Calhoun, Ga. www.mannington.com **CIRCLE 206**



► Friendly veneer

In addition to following production methods that meet today's strict air- and waste-water-emission standards, Tabu's reconstituted veneers, Newood and Caleidolegno, utilize wood species such as Obeche and Poplar, which are relatively inexpensive, fast-growing woods from managed forests. Tabu is currently involved in planting about 30,000 trees of various species to ensure its future supply. Tabu, Englewood Cliffs, N.J. www.tabu.com **CIRCLE 207**

◄ Handier paint palette

Master Coat Technologies has introduced the 2004 color palette for its Scuffmaster line of coordinated durable interior paints. The new Elemental Coordinates palette offers design professionals 140 new colors in six finish styles. The collection organizes the finish styles in a way that provides ideas and inspiration on how they might be specified together in a space. Master Coating Technologies, Minneapolis. www.scuffmaster.com **CIRCLE 208**

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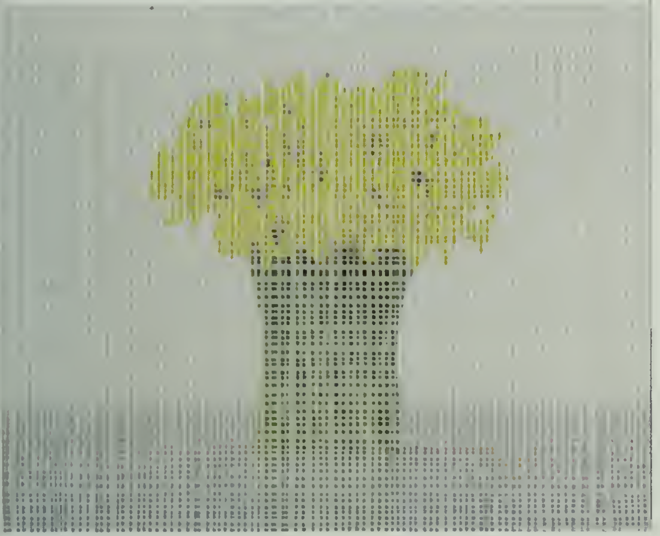
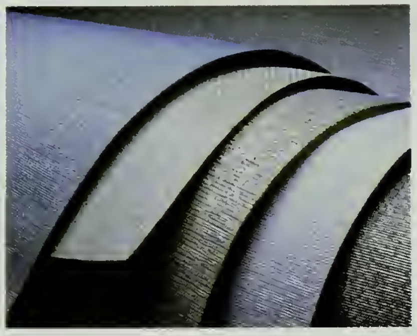
▼ Textile-inspired glass

The weaves+textures collection from Skyline Design was inspired by the everyday fabrics used by indigenous people from places such as Mexico and South Africa. Designers can choose from different colors, patterns, and etching options for sidelights, door lights, feature walls, signage, and horizontal surfaces. The collection comes in standard glass sizes and thicknesses and meets all glass-safety requirements. It can be used on tempered, laminated, low-iron, or clear glass. Skyline Design, Chicago. www.skydesign.com **CIRCLE 209**





▲ One tough wall covering

Flip, Skip, and Zip are three new wall-covering patterns that represent the next generation in durable Hardwear materials from DesignTex. The Hardwear high-performance wall-covering textiles pioneered by DesignTex in the early 1990s has been enhanced with Microban antimicrobial protection. Distinct from surface coatings, Microban will not wash out or wear off, because the protection is built in during the manufacturing process. The DesignTex Group, New York City. www.dtex.com **CIRCLE 210**

► Looks good, sounds good

Latitudes is a new textured ceiling with a geometric visual available from Armstrong. The new medium-textured ceiling combines a crosshatchlike design with a dimensional, sculptured visual. The 2' x 2' mineral fiber ceiling has excellent sound-absorption properties, including an NRC of .65 and a CAC of 37. Armstrong World Industries, Lancaster, Pa. www.armstrong.com/ceilings **CIRCLE 211**

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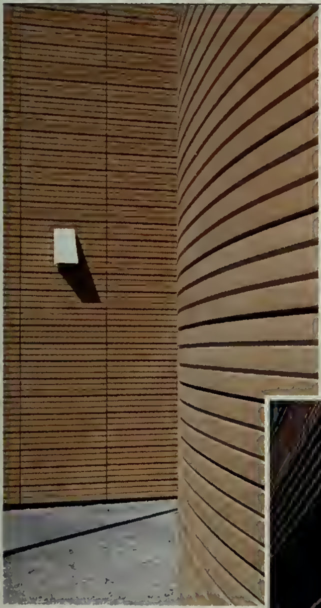
Our focus on **roofing and exterior cladding** features a range of materials and product types—from a powered roof system to better engineered glass panels for the world's tallest building. For more roofing product info, visit the **NRCA's 117th Annual Convention & Exhibit,** held this month in San Diego. *Rita F. Catinella*

Turn-of-the-century mansion renovated for its latest incarnation

Perimeter's Colonial gutter and cornice system is designed to complement high-quality residential homes.

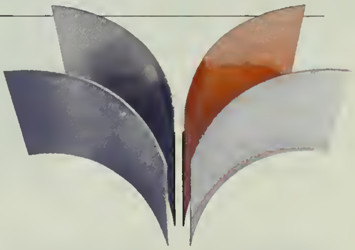
The Mansion at Turner Hill, in Ipswitch, Massachusetts, was completed in 1903 by architect William Rantoul for the Rice family, who made a fortune in tanning and smelting. The mansion boasts plaster hand-molded ceilings, vivid wall friezes, oak hardwood floors, and hand-carved paneling, doors, and stairways. Shortly after Mr. Rice died in 1943, the estate was sold to the Missionaries of Our Lady of La Salette, and the property was converted for ministry and spiritual retreat uses. In 1997, the Raymond Property Company purchased Turner Hill from the order and have since been working to restore the property as a golf course and high-end residential community. The $110 million project, by architect John Olson of Olson, Lewis, Dioli and Doktor Architects of Manchester-by-the-Sea, Massachusetts, will reuse the 311-acre Turner Hill estate and its Edwardian-era mansion. The new portion of the mansion, along with the clubhouse, restaurant, and pro shop, will use Perimeter Systems' 6" Colonial Designer Series Gutter and Cornice System with 3" x 4" downspouts and custom angled miters as part of the exterior cladding renovation. Perimeter custom-matched the gutter system to Navajo White. The mansion is expected to open in spring 2004. Perimeter Systems, Sanford, N.C. www.saf.com/persys **CIRCLE 212**

Ventilated terra-cotta facade system for a range of exterior cladding effects



The system works with solid wall surfaces or open glass constructions to create a range of optical effects.

NBK Keramik GmbH first developed its modern terra-cotta facade system for Renzo Piano's Potsdamer Platz project in Berlin. Known as Terrart, NBK's suspended facade system is made from large-scale terra-cotta elements that are ventilated at the rear. By combining classic techniques along with the latest technologies, the system can work with closed surfaces, open glass constructions, and to create transparent optical effects. Terrart is available in several variations, including Terrart-Large, Terrart-Mid, Terrart-Shingle, and Terrart-Solid. For each individual project, the specifier chooses dimensions, color, surface structures, and glazes along with the manufacturer; NBK's production plant can manufacture any form up to 150 centimeters in length. The Terrart-Flex system is a patented substructure consisting of 15 components that can integrate the facade into any classic or modern wall construction. NBK Keramik, Emmerich, Germany. www.nbk.de **CIRCLE 213**



Improved natural metal cladding

Reynold Natural metals are an alternative for design professionals who want to design with natural metals but are dissuaded by the weight, inflexibility, and cost of heavy plate and sheet metal. Constructed of two sheets of corrosion-resistant zinc, brushed aluminum, copper, or stainless steel permanently bound to a thermoplastic core, the materials are strong, highly formable, and come in a variety of lengths. Alcoa Cladding Systems, Eastman, Ga. www.alcoacladdingsystems.com **CIRCLE 214**

For more information, circle item numbers on Reader Service Card or go to www.archrecord.com, under Resources, then Reader Service.

▼ Powered roof system

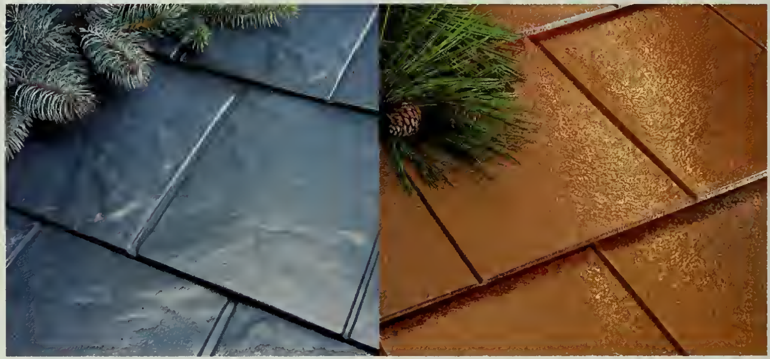
Sarnafil and Solar Integrated Technologies (S.I.T.) completed the first of two integrated photovoltaic commercial roofing systems for two Frito Lay distribution facilities, located in Los Angeles and Sylmar, California. The SR-2001 photovoltaic roofing system, manufactured by S.I.T., incorporated Sarnafil's thermoplastic roofing membrane and flexible photovoltaic cells manufactured by Uni-Solar, into an integrated roofing system that turns the roof into a power generator. Sarnafil, Canton, Mass. www. sarnafilus.com **CIRCLE 215**

▲ Keeping leaks out

Grace Ice & Water Shield is a self-adhered waterproof membrane placed between the shingles and roof deck to provide protection against leaks. Another option from Grace is Vycor Plus, a self-adhered flashing membrane providing premium protection against water infiltration in all critical nonroof detail areas, such as door openings. Grace Construction Products, Cambridge, Mass. www.graceconstruction.com **CIRCLE 220**

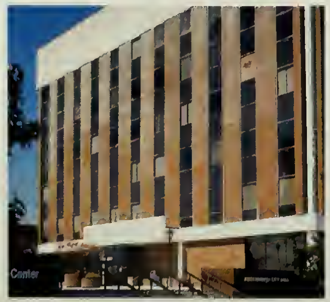
► Tough glass panels for a tall customer

Viracon was selected over three years ago to supply the engineered glass products needed for the exterior facade of Taipei 101, the world's tallest building. Viracon faced the challenge of fabricating glass units to withstand the high wind conditions of a very tall building in a typhoon region. The team needed to fabricate glass panes proportioned to the structure's height, making them larger and thicker than standard glass applications. Viracon, Owatonna, Minn. www.viracon.com **CIRCLE 217**



▲ Two tough metal roofing systems

StoneCrest Slate brand metal shingles (left) have a Class 4 hail rating that can withstand 110-mile-per-hour winds and a four-way, locking weather-tight system for residential or light commercial projects. The StoneCrest Copper roofing system (right) is made from a 16 oz. copper substrate using a stucco embossed profile. Unlike traditional copper roofing, the system does not require special installation tools. MetalWorks, Moon Township, Pa. www.metalworksroof.com **CIRCLE 218**



▲ Renovating without moving, to allow building movement

Portsmouth City Hall, Portsmouth, Virginia, was in need of renovation to repair or replace its deteriorating brick facade but had to remain operational during the process. A complete refacing of the facade was required because the existing brick, installed in the 1970s, was not designed to allow for movement of the building's primary structural framing. Architects Rodriquez Ripley Maddux Motley first completed design studies and then construction plans that specified two Centria products, Formawall Dimension Series metal panels and Formavue windows. The products were chosen for their ability to accommodate any movement of the building in the future. Centria, Moon Township, Pa. www.centria.com **CIRCLE 219**

◄ Exterior trim boards

Windsor Mill's WindsorONE Trim Boards are available for exterior applications including rake, fascia, corner boards, and bond boards. The boards are double primed and have smooth, knot-free surfaces on all four sides, and precision edges. Windsor Mill, Windsor Mill, Calif. www.windsormill.com **CIRCLE 216**

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Product Briefs

▼ By George, they've done it!

Duron Paints & Wallcoverings has been granted the rights to manufacture paint in the colors of one of America's most prestigious homes—George Washington's Mount Vernon. For the first time in 150 years, the colors of Washington's home will be available to the public, with hues such as Prussian Blue, Large Dining Room Verdigris, and Burnt Umber. Shown here is a contemporary dining room scene painted in two colors from the collection, Palladian White and Large Dining Room Frieze. Duron Paints & Wallcoverings, Beltsville, Md. www.duron.com CIRCLE 221

► 90-minute-rated doors

Technical Glass Products (TGP) now offers fire-rated doors that carry ratings of up to 90 minutes. The UL-listed doors are available in sizes up to 48" x 96", depending on the fire rating. Combining Fireframes narrow profile steel framing with clear, wireless glazing such as FireLite Plus or Pilkington Pyrostop, the doors offer both fire protection and high-impact safety ratings. TGP, Kirkland, Wash. www.fireglass.com CIRCLE 223

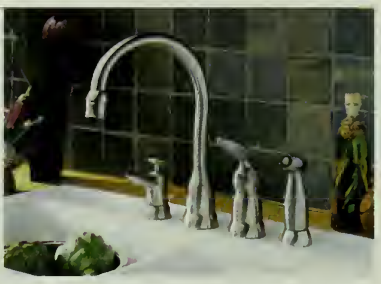
▲ Supple, textured textiles

Inspired by common industrial floor plates and corrugated craft paper, Suzanne Tick has created two new vinyl upholstery fabrics for KnollTextiles. Instead of using traditional steel engraving rolls, which can limit flexibility, Tick discovered a new technology that can easily transfer any pattern onto a synthetic surface using a "vacuum draw" process. Both textiles are supple, pliable fabrics that smoothly follow the contours of soft seating with a pattern of pronounced surface texture. Both are 54" wide and pass 75,000 double rubs on the Wyzenbeek test. KnollTextiles, East Greenville, Pa. www.knolltextiles.com CIRCLE 225

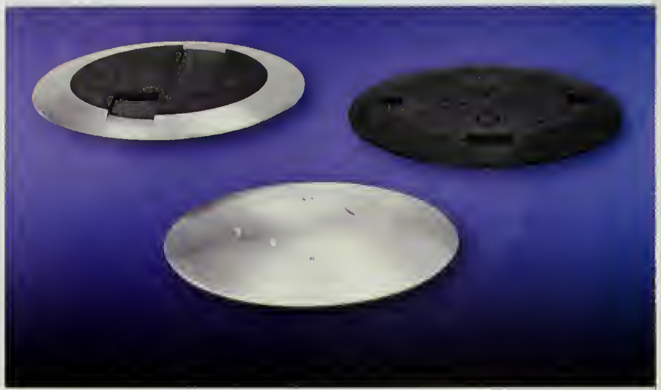
Product of the Month Eclipse Advantage Glass

According to Pilkington, many architects like tinted glass but want to avoid an outdated "1980s look" that is too reflective. On the other hand, some architects imagine a clear glass building without tint but sacrifice that aesthetic in favor of blinds that control heat and glare, although they produce an uneven "checkerboard" look from the outside. Pilkington's solution to both issues is Eclipse Advantage Reflective Low-E Glass, the world's first architectural pyrolytic glass to combine subtle reflectivity with desired thermal and solar-control performance. In addition, for a reflective glass, the product offers a high level of visible light transmittance, which reduces the need and cost for artificial lighting. The composition that gives the glass its low emissivity, solar control, and subtle reflectance is an integral part of the glass surface, not just an applied coating. Unlike sputter glass (soft coat) products, Eclipse Advantage can be treated like standard glass. Pilkington North America, Atlanta. www.pilkington.com CIRCLE 222

▼ Accessible kitchen and bath line



Delta has collaborated with AIA Gold Medal–winning architect Michael Graves, FAIA, to create a line of faucets, showers, and accessories for the kitchen and the bath that feature Graves's unique take on product design. Faucets feature a high arc spout, while handles are oval shaped and easy to grasp. The entire Michael Graves Collection, from faucets to accessories, is available in three finish options and is ADA-compliant. Delta Faucet Company, Indianapolis. www.deltafaucet.com. CIRCLE 224



▲ Poke-thru-style fittings for underfloor duct

Wiremold has introduced flush, poke-thru-style service fittings for Walkerduct Pro Series underfloor duct systems that offer four power receptacles and four data jacks, as well as furniture feed options. The PSRCO Series activation is based on the RC9 poke-thru device and offers individual slide covers with integral gaskets that protect receptacles and communication devices when not in use. Communication fittings have bezels that accept industry standard and proprietary devices from a wide range of manufacturers to provide a seamless interface for voice, data, audio, and video applications at the point of use. The fittings can be used in both new construction and retrofits. The Wiremold Company, West Hartford, Conn. www.wiremold.com **CIRCLE 226**

▲ Retooled receptacle

The Chase Park litter receptacles are part of the Kipp Stewart collection of outdoor products for Landscape Forms. Engineers have tooled out some manufacturing costs to lower the receptacle's price, and added a personalized logo option. The large capacity aluminum litter receptacle can be ordered at a 40-gallon size with a top opening, and a 36-gallon size with a side opening. Landscape Forms, Kalamazoo, Mich. www.landscapeforms.com **CIRCLE 227**

▼ No more frozen fountains

Haws has introduced a new freeze-proof valve for pedestal drinking fountains. The Model 6519FR valve allows customers to keep pedestal fountains operating during freezing conditions. While several manufactures offer valves aimed at that application, the Haws valve is engineered to be oblivious to water-table conditions. Haws, Sparks, Nev. www.hawsco.com
CIRCLE 228

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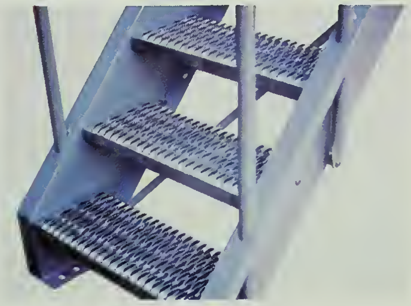
▾ Natural insulating material

The French company Nap'tural offers a patented new insulating material called Batiplum. Made of 70 percent duck feathers, 20 percent thermofusible textile fibers, and 10 percent hygienic wool, the blanketlike material is available in two categories: Batiplum mur (for walls) and Batiplum toiture (for roofing). The textile fibers bond the wool and feathers, avoiding the need for resin. Last year, Batiplum won a silver medal at the Innovation Competition during the Batimat trade show held in Paris. Nap'tural, c/o French Technology Press Office, Chicago. www.infotechfrance.com **CIRCLE 229**

◂ Sacrificial surface shield

CPFilms introduces a new replaceable LLumar Graffiti film that is designed to provide a sacrificial shield for smooth surfaces that undergo the ravages of graffiti paint, mechanical etching, and acid attacks. The patented crystal-clear, scratch-resistant coating and film laminate absorbs scratches in its surface and helps prevent them from being transferred to the glass beneath. The film can be used to protect a variety of surfaces, including showroom or store windows, washroom mirrors, or pillars in a shopping mall (shown). CPFilms, Martinsville, Va. www.llumar.com. **CIRCLE 230**

▸ Conventional stair line



Known primarily for the Alternating Tread Stair, Lapeyre Stair now designs and fabricates conventional industrial stairs. Customers can call in their building codes and specs to have industrial egress stairs or fixed industrial stairs designed and built to order. Available in carbon steel with a variety of finishes, the stairs may be ordered with grip, diamond tread plate, bar grating, or concrete pan treads, and they comply with OSHA and BOCA codes. Lapeyre Stair, New Orleans. www.lapeyrestair.com **CIRCLE 231**

For more information, circle item numbers on Reader Service Card or go to www.archrecord.com, under Resources, then Reader Service.

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Product Literature

New York design reference

The 2004 edition of *DESIGNnewyork* is a reference guide to architecture, fashion, graphic design, interior design, and product design in New York City. The book is divided into three categories, "What," "Where," and "When," which allow readers to find design-related information by topic, location, and time of year. Design Paradigm, New York City. www.designnewyork.info **CIRCLE 232**

Solid-surface guide

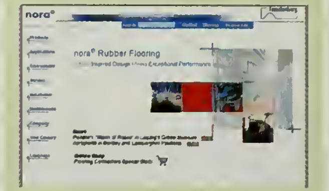
A 16-page commercial-products guide features a complete review of Swanstone's solid-surface and Veritek compression-molded products designed for commercial/institutional applications such as public restrooms, laundry rooms, and maintenance areas. The Swan Corporation, St. Louis, Mo. www.swanstone.com **CIRCLE 233**

Landscape lighting catalog

Catalog 03 contains application and specification information covering the broad range of Allscape products. The catalog is divided into sections for Specified Landscape, Step Lights, Low Level, Flood Lights, Building Mount, Architectural, and Area Lighting. Allscape, Santa Ana, Calif. www.allighting.com **CIRCLE 234**

NEW SITES FOR CYBERSURFING

New commercial rubber-floor-covering site **www.norarubber.com**



Wilsonart laminate has revamped its Web site **www.wilsonart.com**

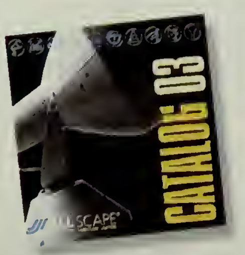
Palmetto Brick's online estimation calculator increases the efficiency of brick and mortar needed for projects of all sizes **www.palmettobrick.com**

New site for manufacturer of wood components and profile wrapped products **www.contactlumber.com**

Sustainable position

Wausau Window and Wall Systems' *Build Green* brochure showcases Wausau's support of green building and sustainable design goals through product features such as energy-efficient glass and framing, natural daylighting, exterior sunshades, and occupant-controlled ventilation. The brochure also features examples of Wausau's contributions to LEED-certified projects. Wausau Window and Wall Systems, Wausau, Wis. www.wausauwindow.com **CIRCLE 235**

2004
design new york
The What Where When reference guide to architecture, fashion, graphic design, interior design, and product design in New York City



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Product Literature

Cypress certification

The Southern Cypress Manufacturers Association (SCMA) has published a new version of its *Versatile, Distinctive Cypress* brochure, with a new section devoted to the first-ever certified engineering design value for cypress. The certification means that cypress design values are recognized in model building codes across the U.S., making it easier for architects to specify cypress for structural applications. SCMA, Pittsburgh. www.cypressinfo.org CIRCLE 236

Decorative lighting catalog

W.A.C. Lighting is offering a new 28-page color catalog on its Glass Companions line of Counter Balance Adjustables, Wall Sconces, Monopoints, and Multipoints. W.A.C. Lighting, Garden City, N.Y. www.waclighting.com CIRCLE 237

Quick-ship seating program

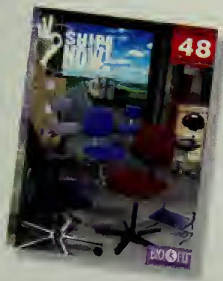
BioFit Engineered Products offers a new catalog featuring ergonomic chairs in its quick-ship program for customers who need seating immediately. The new catalog showcases the hundreds of ergonomic chair models now available in BioFit's Ship Now! program. BioFit recently expanded its program to include a wider selection of chair models for industrial, laboratory, high-tech, and office applications. BioFit Engineering Products, Bowling Green, Ohio. www.biofit.com CIRCLE 238

Tunnel lighting brochure

Metrolux Lighting's new brochure focuses on the TunnelMaster TU-18 Series of high-performance luminaires designed specifically for demanding tunnel and underpass applications. The 12-page brochure provides an overview of the technical complexity inherent in properly illuminating tunnels and underpasses, and their approaches or exits, on a day-in, day-out basis. Metrolux Lighting, Franklin Park, Ill. www.metrolux.com CIRCLE 239

Furnishings brochure

Nucraft Furniture Company offers a new brochure for its Maya collection of occasional tables, consoles, and benches. The four-page document features photography, product illustrations, and descriptions of the line. Nucraft Furniture, Grand Rapids, Mich. www.nucraft.com CIRCLE 240



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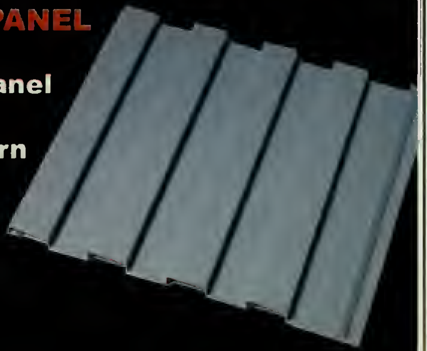

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Program title: **"Integrating Contemporary Systems into Historic Structures Without Destroying Significant Fabric," Architectural Record (02/04, page 129).** 024EDITD

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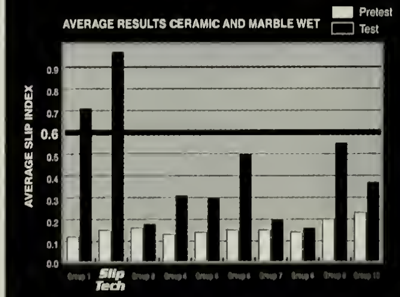

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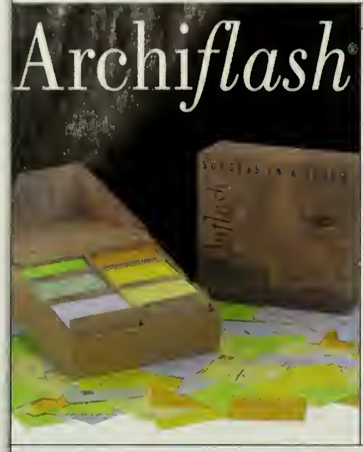

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2 Site construction

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www.faacusa.com 151

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4 Masonry

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www.vermontstructuralslate.com 154

Master Halco

Decorative Wire Fencing

2 Site construction

Master Halco's new Series 300™ Decorative Wire fencing incorporates some of the best design elements of its industry-leading ornamental iron and color chain-link. Its steel and wire mesh construction in a special twin wire design creates unique joint strength and durability. Series 300 is available in four colors: tan, bronze, white, and black. Decorative wire fencing complements a variety of architectural styles and is backed by a 12-year limited warranty. With more than 60 locations across North America, Master Halco has the products and services to satisfy your project requirements. Visit Master Halco's Web site to view its extensive product offering and download specifications and drawings. (Black decorative wire fencing as seen in the 2003 Sunset Idea House.)

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www.fryreglet.com

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Wylie Metals

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Gage Corporation

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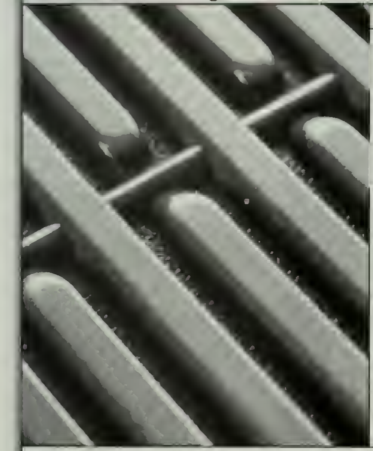

5 Metals

Gagecast™ is a cast metal wall surfacing material suitable for a variety of interior architectural applications where patterns that feature high luster, relief, durability, and cost-effective installation are a requirement. Twenty-four designs are standard; however, custom collaboration is encouraged. Gagecast is one component of Gage Vertical Surfacing. Contact the factory for product literature and selected samples.

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6 Wood & plastics

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HDI Railing Systems

Railing System

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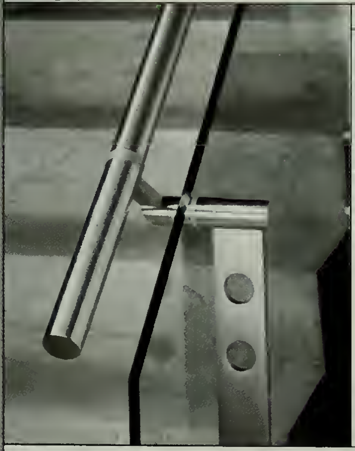

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6 Wood & plastics

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Balustrades.com

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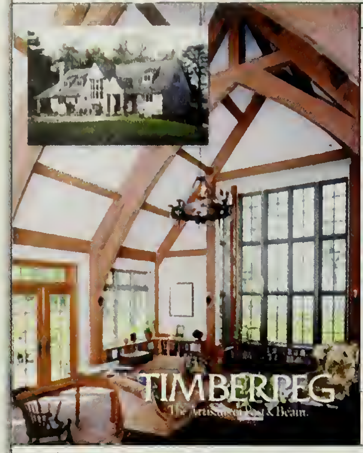

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7 Thermal & moisture protection

J.L. Industries introduces a new line of UL-listed, FM-approved fire vents. These fire vents are equipped with UL-listed 165° fusible link for automatic operation. J.L. Industries fire vents are manufactured with 14-ga. galvanized steel curb and frame and 11-ga. aluminum covers. J.L. Industries now offers a full line of domed fire vents, equipment hatches, and skylights in addition to galvanized steel and aluminum roof hatches and aluminum floor doors.

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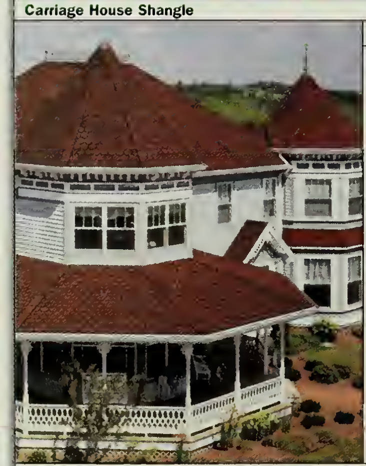
CertainTeed Corporation, Roofing Products Group

Carriage House Shangle



7 Thermal & moisture protection

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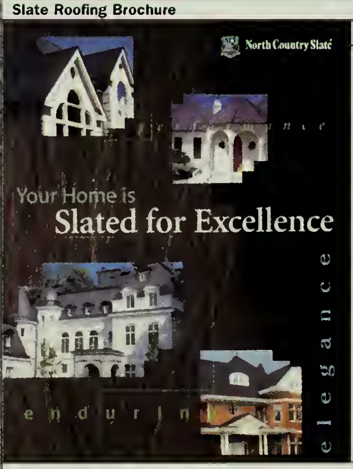
North Country Slate

Slate Roofing Brochure 800-975-2835



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North Country Slate offers a new brochure explaining the design and performance advantages of their remarkable roofing material to your residential customers. In six glossy pages, "Slated for Excellence" presents all the features and benefits to your client, the homeowner. Make sure you have this brochure on hand for your next discussion on slate roofing. Email info@ncslate.com.

www.northcountryslate.com 166

EcoStar

Cedar Shake Tiles

7 Thermal & moisture protection

Seneca Cedar Shake Tiles are produced using the most flexible recycled materials, which emulate the exact look of wood shakes, yet are durable and lightweight. Seneca Cedar Shake Tiles are manufactured at random widths of 6-in., 9-in., and 12-in. to create the traditional look of a wood shake roof. Unlike traditional wood, the tiles are available in nine different colors offering a unique architectural opportunity. Like all EcoStar premium steep slope-roofing products, Seneca Cedar Shake Tiles offer excellent advantages including class 4 impact resistance, the availability of a 50-year warranty, and a 100 mph wind warranty.

164

Trespa North America, Ltd.

Exterior Cladding Systems 800-487-3772

7 Thermal & moisture protection

Trespa Meteon® is a unique exterior facade cladding system suitable for both new construction and re-cladding projects. Its weather resistance, high color stability, impact resistance, and non-porous surface structure make it the perfect material for a wide range of exterior applications. Trespa Meteon is available in a variety of standard solid colors, natural prints, and rich metallic hues as well as satin, gloss, and rock textures. Trespa is BEES listed and a member of USGBC.

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Bronze Clad Casement

8 Doors & windows

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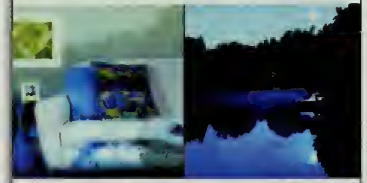
SCHOTT Corporation

Anti-Reflective Glass 914-381-2241



Ordinary Glass AMIRAN Anti-Reflective Glass

8 Doors & windows

Give residential clients clear nighttime views. Once used primarily for commercial applications, AMIRAN anti-reflective glass is now readily available for residential projects. It reduces reflection in insulated glass from 16% to as little as 2%, even at night. AMIRAN anti-reflective glass can be installed in any standard frame or glazing system and is also perfect for retrofits.

www.us.schott.com 171

Marvin Windows and Doors

Cladding Colors 888-537-8266

8 Doors & windows

Marvin Windows and Doors has introduced nine new select clad colors, expanding the company' s total clad color offerings to 19 options. New hues in Marvin's select clad color palette include: Cobalt Blue, Cascade Blue, Cadet Gray, Cumulus Gray, Sherwood Green, Hampton Sage, Cashmere Beige, Coconut Cream, and Sierra White. Marvin currently offers five standard clad colors: Stone White, Pebble Gray, Bronze, Evergreen, and Bahama Brown; as well as a virtually unlimited number of custom colors. For more information, please call Marvin Windows and Doors.

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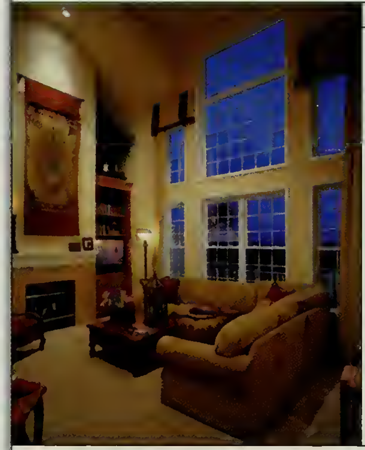

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Nathan Allan Glass Studios Inc.

Cast Glass Products 604-277-8533

8 Doors & windows

New to Nathan Allan's Venetian Series, "Antique Serpentine" glass is just one in its long list of brand new products available at Nathan Allan. Replacing old style glass that the owner could no longer locate, Nathan Allan was able to cast and shape new panels to replicate the existing glasswork. View Nathan Allan's Web site to see 10 brand new products available for 2004. Fax number 604-277-1515. Email: bm@nathanallan.com.

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9 Finishes

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9 Finishes

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The Noble Company

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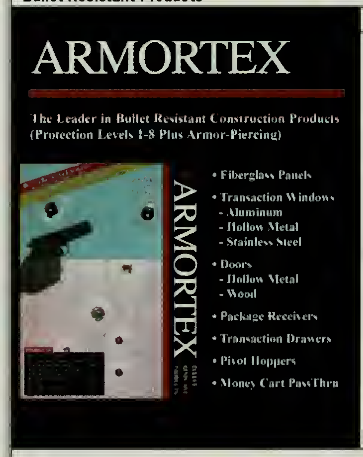

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13 Special construction

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ⓡ 178

Advanced Visual Solutions

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Tensile Fabric Structures 866-275-9710

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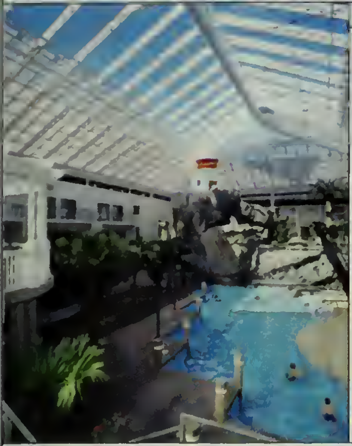

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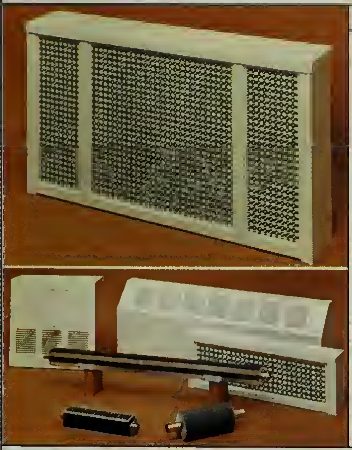

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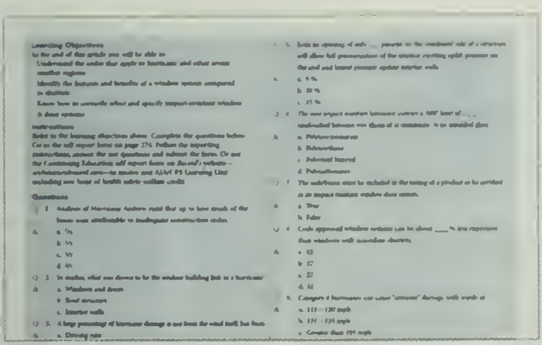

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Sam Farber's recipe for business success relies on design sensitivity

Interviewed by Jane F. Kolleeny

Entrepreneur, collector of art, and appreciator of architecture, Sam Farber has in the course of his career created and later sold COPCO and OXO International, both highly successful and innovative houseware companies, and recently founded yet another, WOVO. Farber has also served in various academic capacities, lecturing on design to business students and mentoring design programs at graduate business schools. He is director of the Corporate Design Foundation and a trustee of the American Folk Art Museum in New York City. For years he has pursued his interest in Outsider Art and is a director of the magazine Raw Vision, *which covers it.*

Q: *How did your role as chairman of the building committee for the new American Folk Art Museum come about?* The museum knew of my interest in and collection of Outsider Art, which is art executed by untrained artists who are often institutionalized: isolates or eccentrics who create art from the visions of the world they come to know, not the world as we know it. The museum wanted to develop a presence in the area of contemporary folk art, to which Outsider Art belongs. Shortly after I joined the museum, I was asked to chair the building committee. They asked me because of my enthusiastic pursuit of design in my career, and I have cultivated a particular interest in architecture for many years.

Our building committee went through the typical processes involved in selecting an architect, and when I and two other trustees saw Tod Williams Billie Tsien & Associates' Neurosciences Institute in La Jolla, California, we immediately felt a strong resonance. We also appreciated their approach in the interview. Instead of coming to us with design ideas, they talked about their philosophy, saying that a design could not be clarified without first seeing the art that the building would hold. We were impressed by that.

How did you become a design entrepreneur? I am what I call a "serial entrepreneur," and I got into it purely by accident. The quality most evident in an entrepreneur is naïveté—I think Tom Peters calls it stupidity—the impulse to take risks. I was inspired to develop COPCO because I observed that enameled cast-iron cookware was very traditional in appearance. I wished to create something new and modern in design. Another serendipitous invention was OXO, which was inspired by my wife Betsy's question when chopping vegetables in the kitchen: Why couldn't common kitchen tools be comfortable to use? We explored that question by playing around with clay and the handles of kitchen tools, and voilà, we invented a product line and later a company.

What parting words would you share with our readers? Innovation is only meaningful when it enhances the human experience. Too many times, in both the worlds of product design and architecture, the designer and architect forget that in the final analysis, it's about the user.

Photograph by Jeremiah Jones at Sam Farber's home in New York City. The featured art is* Holocaust*, by Verbena, 1988, from Farber's collection.

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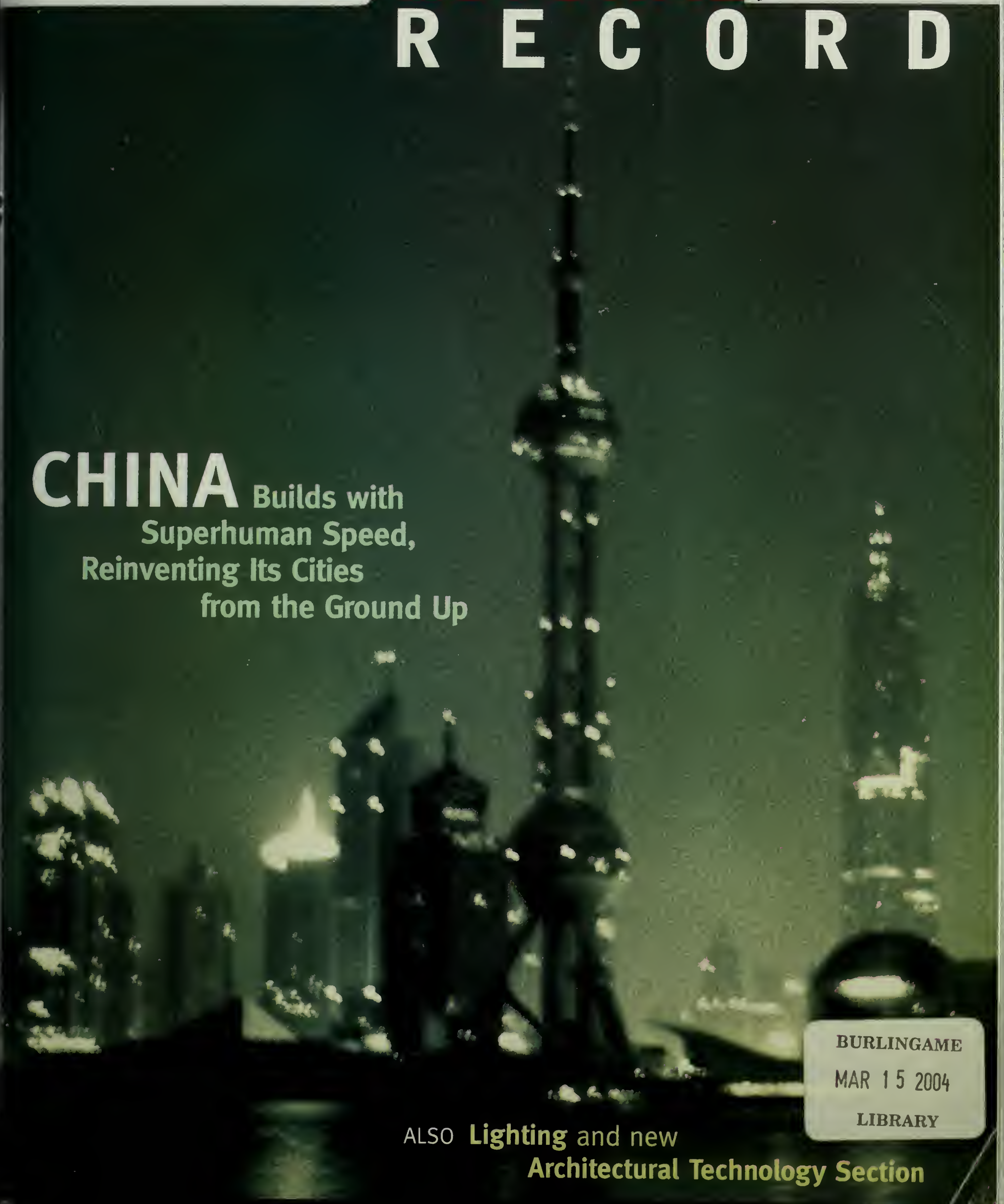

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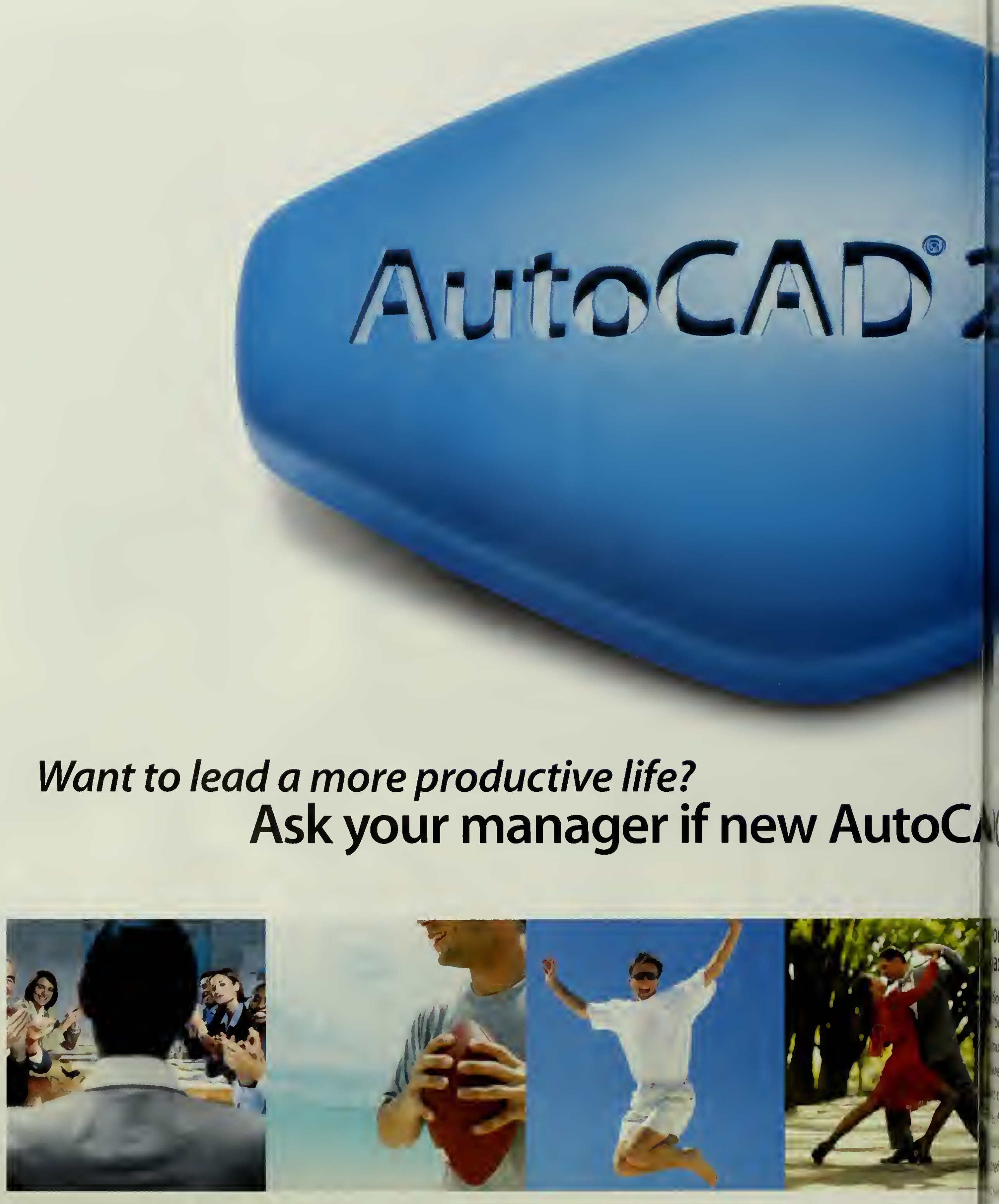
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Indications and Usage

Do you experience a dull, throbbing sensation when performing boring, repetitive tasks? Do you become irritable when your drawings contain errors that require tedious and time-consuming revisions? Do you feel acute pain in the *gluteus maximus* region when you have to stay late to do your printing and plotting? If you answered "yes" to any of these questions, don't bother asking your manager: new AutoCAD 2005 is right for you.

Dosage and Administration

New AutoCAD 2005 is potent medicine that relieves all of the above symptoms with a single application. How? you might ask. For the first time, new AutoCAD 2005 has Sheet Set Manager, which lets you create, manage, and share entire sheet sets simultaneously. It lets you work smarter and faster because it automates many of the tedious tasks that slow you down. Such as archiving, transmitting, creating, and updating the sheet index; creating tables, sections, and callouts; and placing and updating title block and page number. In other words, it lets you create intelligent sheet sets that automatically update themselves and radically reduce revisions.

There are many other cool features in AutoCAD 2005, like background printing and one-click publishing and plotting. These features alone are going to save you lots of time. Of course, since you'll be able to keep working while you're plotting, this may cut down on the number of coffee breaks. But the Surgeon General is asking us all to cut back on the caffeine anyway. Personally, after about four cups we can feel our scalp sweat, and we start to seriously lose our patience with others.

But we're getting ahead of ourselves. Chances are you're still using AutoCAD 2002 or an earlier version, so you've yet to experience the extraordinary performance of our last release, AutoCAD 2004. How good was it? Well, don't take our word for it. This is what Robert Davis of the Benchmark Group says: "AutoCAD 2004 . . . has the greatest and most compelling set of new features, functions, and enhancements of any AutoCAD release I have worked with. I think this release will be a must-have upgrade for every AutoCAD user." Taken together, the performance enhancement you'll get from these last two releases will blow you away. Almost every design and drafting task is simpler, easier, and faster, no matter what kind of work you do.

Possible Side Effects

With new AutoCAD 2005, you're going to be finishing tedious tasks much faster, so you can spend more time on the more rewarding aspects of your work. That means you'll probably be happier. You'll also be more productive, so people might think you're taking one of the drugs they advertise in those weird pharmaceutical commercials on TV. How are you supposed to know if you need the stuff if they don't tell you what it's for? One more thing—if you're using AutoCAD 2005 and the people around you aren't, another side effect may occur: performance envy. Because when everyone else sees how much faster you're completing routine tasks, they can't help but be annoyed. Who could blame them?

Precautions

Of course, there is the issue of what to do with your new free time. If you're the sort of person who gets into trouble easily, you may want to channel all your efforts into work. Who knows, you may be running the place in a couple of months. However, if you often find yourself choosing dinner from the office vending machine, we recommend you avoid the tuna sandwiches.

Perhaps you'd prefer to channel your newfound energy into home improvement. You could probably use a new redwood deck. Maybe a natural stone patio. You could redo the family room and make room for a big-screen TV. In the interest of fairness, you might remodel the kitchen and install one of those professional, stainless-steel stoves the size of an aircraft carrier. They're great for reheating pizza. Or you could dig up the entire backyard and turn it into a replica of Monet's Giverny gardens.

Or maybe you're an active, virile individual like Bob (shown in the photos at left) and will be spending a lot of time outdoors. If so, the Surgeon General recommends that you protect your skin from the sun's harmful UV rays. Use a sunscreen of SPF 30 or higher. Apply every three hours. When hiking, be sure to take along plenty of water and nutritious snacks. Some plants and roots are edible, but you have to know which ones. Generally speaking purple is good, red is bad. Unless it's the other way around. Nobody plans to get lost when they start out on the trail, but these things happen. So a compass might not be a bad idea and maybe a rain poncho, which can be used for shelter. And don't forget the snake bite kit. In any case, be careful out there. And if you've read this far, your persistence is remarkable. Either that or you have too much time on your hands already. So maybe you should get started on that deck right away.

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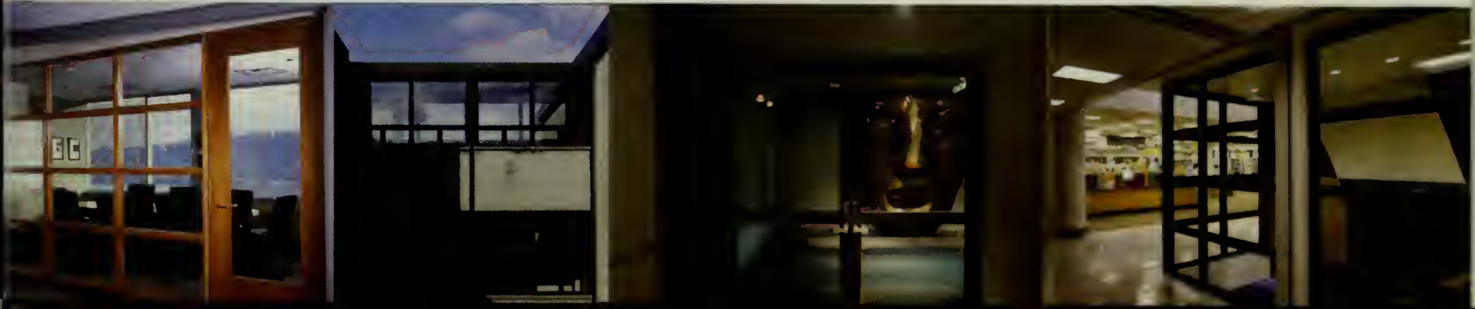

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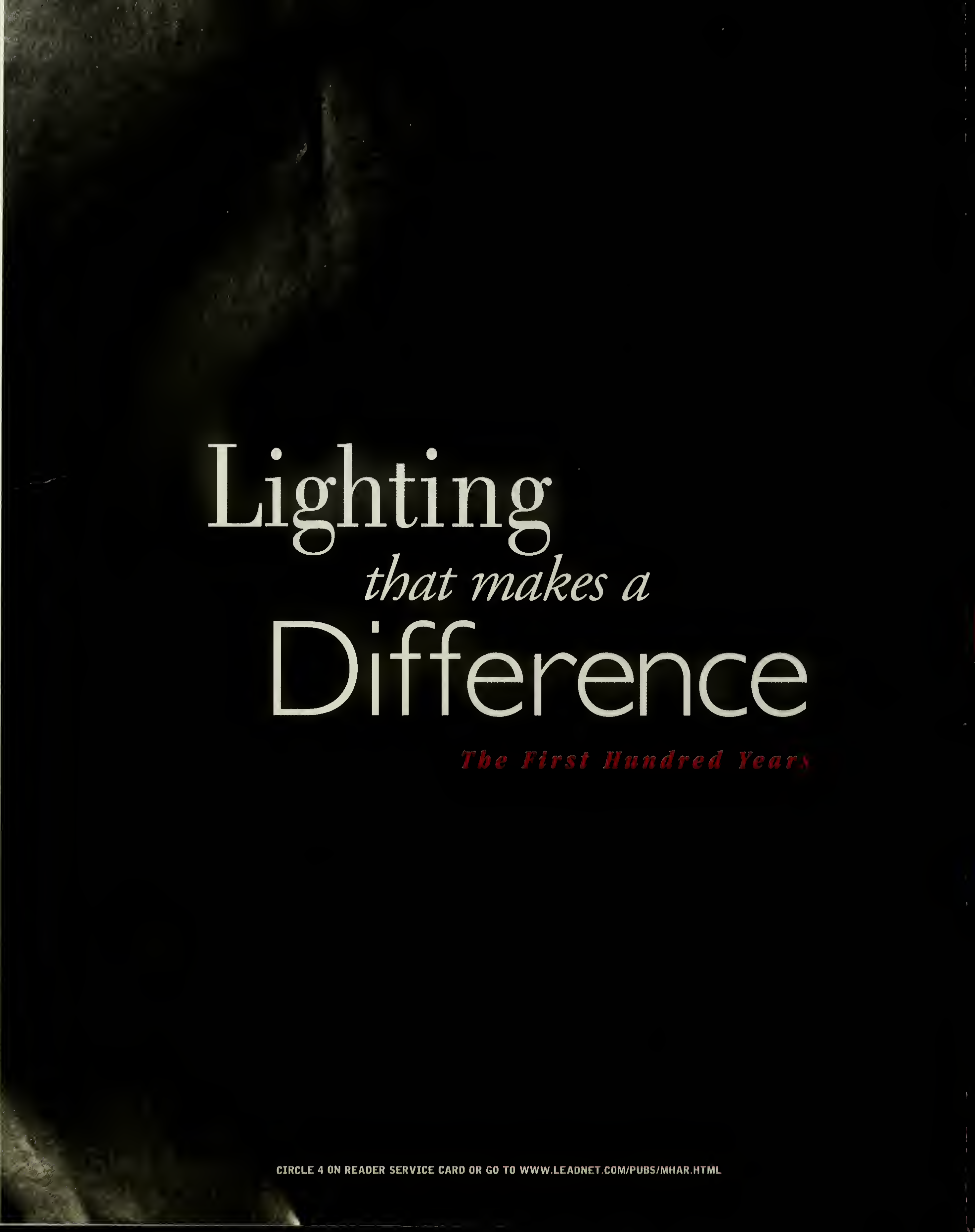

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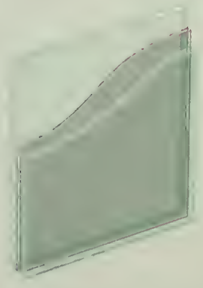

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ARCHITECTURAL
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You can find these stories at ***www.architecturalrecord.com***, including expanded coverage of Projects, Building Types Studies, and Web-only special features, such as our special section this month on China.

Visit us at archrecord.construction.com

March 2004

Photography © Sam Lubell

China

This month's issue of *Architectural Record* is dedicated to the recent surge of new architecture in China. Several Chinese cities are attracting locally and internationally known architects to enhance their skyline. This month on our Web site, we dig a lot deeper into our China issue.

FEATURES

Getting Work in China – we've compiled a list of firms presently working and firms with upcoming projects in China.

In the article **Future Present**, get to know the new generation of Chinese architects. Our Web coverage highlights more of these young architects' new work.

The China **Photo Essay** is expanded on our site. Also exclusive to our Web site are photo tours of China taken by *Architectural Record* editors. Take a virtual tour with compelling photos of China.

Daily Headlines

Get the latest scoop from the world of architecture.

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Photography: © Toshio Kaneko

Nagasaki Peace Memorial, Japan
Akira Kuryu, Architect

Lighting

This month we visit three distinct projects. In Salem, Mass. we see how natural and artificial light mix to illuminate one of the nation's oldest art collections. In Montreal, a former theater lighting technician jazzes up the night skyline, and a memorial hall is thoughtfully lit in Nagasaki.

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Walker Zanger Micromosaic

Products

Each month we feature a Product of the Month, trade show reviews, updates to our Green Product Guide and a focus on a product area. This month check out the latest in tile, stone, and concrete. Also, check out our new user-friendly Reader Services section.

Receive CES Credits Online

Read *Record*'s building sceince and continuing education self-study courses and file for CES credits. This month, learn the latest technology usage in university and industry research facilities.

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Photography: © Richard Barnes

Lycée Français, New York City
Polshek Partnership Architects

Building Type Studies: K-12 Schools

Class is now in session. From San Francisco to New York, see what schools have their students' attention, and take a stroll through the hallowed halls of these private and public schools. In addition, our Web site has 10 extra schools that earn good marks on their permanent records.

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archrecord2

This month we speak to Design architect Li Hu. Born and raised in China, Li Hu currently lives and works in the U.S. His work with Steven Holl Architects and his own firm, OPEN architecture, have led him to projects in China. He is also co-founder of the publication *32:Beijing/New York*.

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欢迎到中国!

Huang Yin Dao Zhong Guo!

Editorial

By Robert Ivy, FAIA

Welcome to China! And to a new world for ARCHITECTURAL RECORD. *Throughout its 113-year history, this magazine has featured work by American architects, and with increasing frequency, informative, inspirational, or provocative work by architects from around the world. With this issue, we literally take a great leap forward, not only embracing an entire nation's work thematically, but also fundamentally altering and enlarging our own brief—as a publication and as an institution.*

You should be able to tell the difference, power-packed and compressed as this issue needs to be. Here you will find our overview of architects and architecture in China, a dizzying attempt for so large a topic. Included is a rich spread of information: outlines of numerous new projects in planning that are transforming eastern Asia; profiles of talented younger designers, many of whom had been trained abroad and have returned to home and family with hip new sensibilities intact; and evidence of what it means for non-Chinese architects who seek work in the China market, and the price it demands.

In addition to magazine publishing, McGraw-Hill Construction has embarked on a mission to China as earnest as any diplomatic one. After numerous Pacific crossings, collectively we are sponsoring a conference there. Unlike most unilateral gatherings, this colloquium will engage dual continents: Asia and North America. For two days this spring, April 15 and 16, we will host a Global Summit in Beijing, drawing two nations and their shared visions and aspirations together. From China will be leaders from national ministries, leading architectural and engineering practitioners, and investors—all gathered to discuss the implications of working where the stakes are so high. Complementing the Chinese will be leaders from North America who will share their own experiences facing the chasm between vision and reality: What obstacles lie in any professional firm's path to international success? There may be room for you at the table as well.

Some people complain that the architectural lingo seems too arcane or difficult. Uniquely, in a first effort, ARCHITECTURAL RECORD *and our sister publication,* ENGINEERING NEWS-RECORD, *will be translated into Mandarin Chinese for local audiences. Thanks to a friendly relationship with our partnering institution, Shanghai's Tongji University, both magazines suddenly broaden their reach: The Pacific will not seem quite so wide after April. Our new digital version of the magazine, made possible through Zinio technology, already lightens the airfreight bill. Virtual delivery weighs no more than bundles of light.*

Too heavy on the China for you? If you are practicing in Illinois or Vermont, you may well ask, "What does all of this China-talk have to do with me?" What goes on there remains halfway around the globe, and how could it affect my own practice? China is, and always will be, Not in My Back Yard.

Yet are you aware that China's growth includes a dynamic component close to home? While we were compiling this issue, a delegation of Chinese builders visiting New York City stated that they were bidding on construction for improving a New York landmark—the Whitestone Bridge. Reciprocally, Perkins & Will, one of this country's leading architectural firms, already maintains two offices in mainland China. In other words, fellow architect, Wake Up! The international revolution has already taken place; but rather than political, it takes the form of economic, commercial, and professional interchange—a fluid melding of ideas and cultures that already affects us all.

Read, visit, attend. In this issue, what might seem radical change merely mirrors the facts.

Robert Ivy

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Letters

Inspirational power
As I read the February 2004 Critique column ["Where does inspiration come from?" page 57], I kept waiting for you to disclose the source of Meier's "inspiration." Your conclusion that it was Hadrian's Villa may be stretching it a bit, inasmuch as you did not mention the designer of the Getty Center gardens, the artist Robert Irwin.

The photograph on page 57 shows the strength and power of Irwin's work as it plays with and against Meier's, without the influence of Hadrian. I strongly recommend you view the documentary video *Concert of Wills, Making the Getty Center*. Here you will see where Meier was headed and where and why the Irwin gardens ended up the way they did.
—Charles Griggs, Architect
Sarasota, Fla.

How did he do it?
Robert Campbell's essay on architects' inspirations and their relationships with those inspirations was an excellent and appreciated commentary [Critique, February 2004]. This subject is too often a delicate one with architects. Campbell's concluding tale of overpowering sun in Philip Johnson's Glass House made me smile. I was fortunate to have been with Johnson when he visited Taliesin during the late summer of 1999. We sat in Wright's great living room, marveling. Johnson asked rhetorically, more to himself than anyone else, "How does he do it? How does he do it?" Given my admiration and respect for both Mr. Wright and Mr. Johnson, I am grateful to have been able to share that moment.
—Jeremiah Kimber
Taliesin Senior Fellowship
Spring Green, Wis.

Wait until it's right
I agree with your January editorial ["Hurry Up and Wait," page 15]. It is certainly a common reaction that the WTC Memorial Competition finalist's designs are unmoving. No wonder, when the jury has focused on the abstract image to be presented to the world instead of the actual context that the design must fit in. There was almost no involvement with the fabric of the city, and certainly no responsiveness in the winning designs to the actual programmatic requirements of the competition. I fear that when built, the design will be severely compromised by all the other buildings and requirements not yet addressed.

A case in point is the final resting place of the unidentified remains—to me the most important and poignant item in the whole competition. None of the finalists seemed even to address the issue of the remains, which should have marked the site as a sacred place and become incorporated into its most enduring symbol.

Another problem is that none have come to terms with what Daniel Libeskind has proposed directly adjacent and overhanging the site—either the slurry wall, as Robert Ivy mentioned, or the cube in the northeast corner. An interpretive museum, as you suggest, is the obvious function for Libeskind's cube.

Congratulations on a well-thought-out editorial and worthwhile proposals. Waiting additional time to get it right is the right idea.
—Bill Dede
Atlanta

Safety is not optional
Reginald Fuller's letter in the February issue [Letters, page 17] hit the proverbial nail on the head. Safety first.

Although it pains me to say it, it appears that some architects value aesthetics over fundamental safety requirements. As an architect whose practice specializes in building safety, I have investigated too many situations where the pursuit for some architectural aesthetic created unsafe conditions that resulted in personal injuries. These conditions include stairs without handrails, ungraspable handrails, unguarded open-sided floor areas, unmarked large glass panels, variations in stair-tread dimensions, floors that can become slippery under expected use conditions, or roofs that discharge storm water, snow, and ice to pedestrian areas below. The resulting injuries could be easily avoidable if the architect recognized that safety is a fundamental program requirement and is not an optional consideration.

The publication of projects that contain unsafe components without constructive criticism glamorizes the design and sends the wrong message to readers (including young architects). The recognition of being published may be construed as condoning an incomplete or unsafe design in the pursuit of some aesthetic ideal. The publication of these projects also marginalizes the work of the many architects whose designs comply with the adopted codes and recognized safety standards. Architects need to be aware that safety is fundamental to all designs.
—Julius Pereira III, AIA
Chadds Ford, Pa.

Grid and bear it
As a former Inside Dopester camping out in California, I fully endorse Robert Campbell's notion that the street grid in New York City [Critique, December 2003, page 49] represents the city's essence, its genetic code, giving it the conflicting virtues of mystery and clarity—through its human-scaled blocks of pizza parlors, apartments, markets, offices, shops—ever changing yet always recognizable as New York City.

It is therefore a great pity that none of the proposals for the new World Trade Center sought to return the lost grid to the megablock originally created to accommodate the towers. At that time, superblocks were all the rage as symbols of efficiency, industry, and urban renewal. The city grid that Campbell so enthusiastically celebrates was easily obliterated in favor of blank windswept plazas and massive identical high-rises—a scheme we now acknowledge as antithetical to the soul of the city.

The Libeskind proposal of staggered megaliths, for all the fanfare, is merely a more stylish version of the old—as static, inhuman, and heartless. How terrible for us to have squandered this unexpected opportunity when we could have followed the more difficult but ultimately more rewarding path where the variables are complexity, chance, and time.

We could have reinstated the Lower Manhattan grid into the megablock, thus allowing for infinite change within its permanence—change that would have resulted in unique combinations of densities and uses. This is the possibility that the grid so generously offers.
—Tara D. Lamont, AIA
Sausalito, Calif.

Corrections
February's Building Science article [page 129] should have quoted George C. Skarmeas, AIA, director of historic preservation at Hillier in Philadelphia, when speaking about the New Orleans Charter for Joint Preservation of Historic Structures and Artifacts. Rem Koolhaas received the 2004 RIBA gold medal in February [News, January 2004, page 28]. In January's article on the Fifth Avenue Loft, the credit for the top photo on page 168 should have gone to Lara Thrasher of Murphy Burnham & Buttrick.

Write to rivy@mcgraw-hill.com.

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Record News

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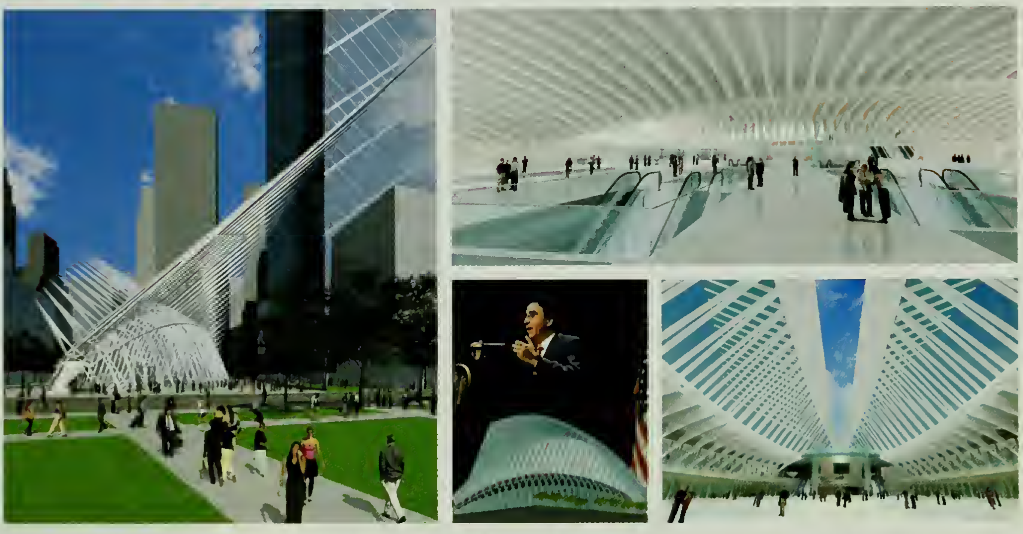
AIA Honor Awards p. 26
Cloepfil updates design for 2 Columbus Circle p. 30
New Centre Pompidou unveiled in France p. 34

REBUILDING LOWER MANHATTAN

Design for World Trade Center transit hub unveiled


The hub's exterior (left); lower concourse (above right); upper concourse (below right). Calatrava describes his plan (center).

IMAGES: COURTESY PORT AUTHORITY OF NEW YORK AND NEW JERSEY, EXCEPT © RAMIN TALAIE (CENTER)

Using models, slides, videos, and even felt-tip markers for sketching, architect Santiago Calatrava unveiled his soaring plans for the World Trade Center transportation hub, which will convey Lower Manhattan residents and workers to and from the area via PATH, N.Y.C. subway, and airport rail.

Calatrava's $2 billion project will sit on the eastern edge of the trade center site within its own plaza, aligned with Daniel Libeskind's proposed "Wedge of Light" (an open space designed so that beams of light will hit the new trade center at key times each September 11).

At street level, an ovular, wing-shaped glass and steel structure will welcome visitors. Held in place with ridged steel arches and compression rings, the 350-foot-long station will jut 168 feet into the air.

Underground, the station will feature roughly 200,000 square feet of retail, open space, and train platforms. Visitors will first encounter a balconied upper concourse level with shops and amenities. Twenty feet below, the 410-by-204-foot main concourse extends, free of columns (thanks in part to a roof made of arched concrete ribs), offering retail and pedestrian access to subway lines and neighboring buildings. Beneath this level, travelers will reach the mezzanine, meant primarily for ticketing facilities, with PATH train platforms on the level below.

The station's white concrete interior will be suffused with daylight, thanks to the large glass entrance, glass block floors, and skylights situated throughout. Meanwhile, a hydraulic system allows the entrance structure to open in warm weather. The movement also has symbolic meaning, Calatrava said, enabling the building to spread like outstretched arms, or the wings of a bird—a phoenix rising from the ashes.

"It will be a brilliant light in the midst of the city," the architect said, stressing the building's importance in attracting visitors downtown. Calatrava has previously designed transit stations in Lisbon, Zurich, Switzerland, and Valencia, Spain.

The design for the Port Authority of N.Y. and N.J.'s new station essentially completes the initial planning process for the World Trade Center site. Only the preliminary designs for the area's cultural facilities remain.

The station is a joint effort between Calatrava with DMJM + Harris and STV Group. It will serve about a quarter of a million people a day, said Port Authority vice chairman Charles A. Gargano. The hub is expected to begin passenger service in late 2006 and be completed in 2009. *Sam Lubell*

WTC Briefs

Plan for WTC cultural complex released

The LMDC shared a report detailing its vision for a World Trade Center cultural district. Plans include a 50–70,000-square-foot memorial center, with artifacts from the 9/11 attacks; a 100–200,000-square-foot performing arts center to the east of the WTC site; and 200–250,000 square feet of cultural buildings located adjacent to the old WTC's north and south tower footprints.

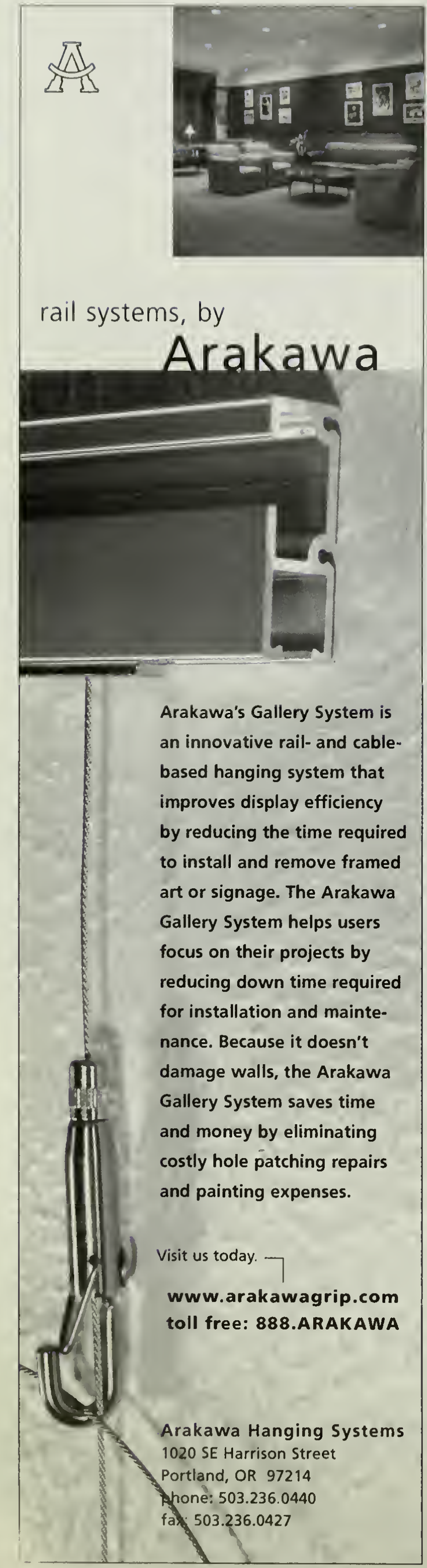
Among the more than 15 institutions short-listed for space at the complex are New York City Opera, the Joyce Theater Foundation, the New York Hall of Science, and the New-York Historical Society. *S.L.*

Insurance trial continues

The World Trade Center insurance trial began on February 9 in New York City, pitting developer Larry Silverstein against 13 insurance companies. Silverstein, who held a lease on the Twin Towers, claims entitlement to more than $7 billion in insurance payments, declaring that each plane that struck the towers constituted a separate attack. The companies, led by Zurich-based Swiss Re, argue he is only entitled to around $3.5 billion. *S.L.*

JFK link options announced

The LMDC announced four alternatives for improved rail access from Lower Manhattan to Long Island and JFK International Airport. Plans include a new tunnel in Lower Manhattan, the existing Montague Tunnel (just north of the new tunnel, it now serves the N and R subway lines), the existing Cranberry Tunnel (just north of the Montague, it now serves the A and C subway lines), or a combination of the Montague and Cranberry Tunnels. *S.L.*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REBUILDING LOWER MANHATTAN

An Interview with WTC Memorial designer Michael Arad

Architect Michael Arad was selected in January to design the World Trade Center Memorial. Arad, who lives in New York, has worked for the New York City Housing Authority and for New York–based Kohn Pedersen Fox (KPF). He is working on the memorial project with a team that consists mostly of designers from KPF.

ARCHITECTURAL RECORD: *Can you describe your reaction when your design was chosen for the memorial?*

MICHAEL ARAD: It didn't feel quite real. It took me a few hours to understand it, and I still have that "reality check" experience every once in a while. It's astounding to find myself in this position, and it's very daunting. Really, all I can do is not focus on that aspect, but focus on what I would like to accomplish.

AR: *Can you describe the design process for* Reflecting Absence?

MA: I started thinking about the idea a few months after September 11. I envisioned a memorial that would be on the Hudson River, close to the site. You would walk up to the river's edge and you'd see these two voids which would be sort of inexplicable—how do you have voids in the river?

Then I became very curious about how it could work, and I tested it time and time again. I went to the model shop that I used to go to when I worked at KPF. I spent a few days there with [model builders] Edison Morales and Jamil Awad, and we built this functioning model together. I bought one of those little desktop fountains from Bed Bath & Beyond and broke it open and tore the pump out. It was a fairly complicated little fountain and it worked, which amazed me, because I drew it and drew it, but when you actually poured water into it and plugged it in and it started flowing, it was an amazing moment to see it. So I thought this would be my idea. At that point I put it aside for a few months and focused on going back to work.

Then came the competition. I thought, how would I take this idea that I've been working on for a long time and apply it to the site? I had the idea of creating these two voids, with water flowing away from you and into this void that never fills. The space needed to be a procession: You're moving from space to space focusing on each area. The space also needed to be intimate enough for each person to have their own experience, an understanding of that day.

AR: *What does the design symbolize to you?*

MA: I don't want to be too literal about the interpretation of the design. I think it should be something that is open to different readings, so different people can bring their own understanding to the memorial. But one idea that was important to me was reflecting the continued absence in our lives brought upon by these deaths. So the void remains empty though water flows into it.

Arad was unknown before winning the memorial competition.

AR: *Can you describe your working relationship with [master planner] Daniel Libeskind?*

MA: Daniel's been really supportive, and he's been very generous in his praise. I'm very grateful. He understands that there's a basic premise to this site very much in sync with his idea. While he envisioned a single, large void, this is about the creation of two. If he was upset [with my design], I'm not aware of that. *S.L.*

For more of the interview, including Arad's thoughts on listing victims' names and presenting disaster artifacts, visit our Web site.

For continuous updates on the planning of Lower Manhattan, visit our special section at ***www.architecturalrecord.com.***

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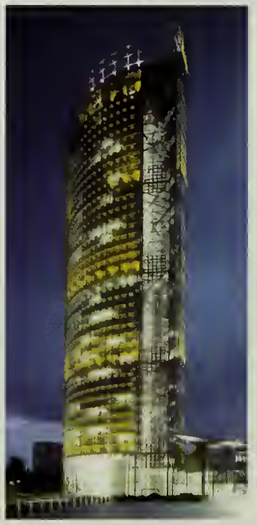
Record News

AIA announces Honor Awards

In January, the American Institute of Architects announced the recipients of its 2004 Honor Awards, the profession's highest recognition of excellence in architecture, interiors, and urban design. Selected from nearly 600 submissions, 30 recipients will be honored in June at the AIA 2004 National Convention in Chicago.

Honor Awards in Architecture
Bayer, Leverkusen, Germany, by Murphy/Jahn;
The Brain, Seattle, by Olson Sundberg Kundig Allen Architects;
Center of Gravity Foundation Hall, Jemez Springs, N.Mex., by Predock Frane Architects;
Chicken Point Cabin, Hayden Lake, Idaho, by Olson Sundberg Kundig Allen Architects;
Deutsche Post, Bonn, Germany, by Murphy/Jahn;
DoMa Gallery, Baltimore County, Md., by W Architecture and Landscape Architecture;
Los Angeles Design Center & Cisco Brothers Showroom, Los Angeles, by John Friedman Alice Kimm Architects;
Northeastern University West Campus Residence Halls, Boston, by William Rawn Associates, Architects;
Telenor Headquarters, Oslo, Norway, by NBBJ/HUS/PKA;
The Point House, Montana, by Bohlin Cywinski Jackson;
The Seaside Interfaith Chapel, Seaside, Fla., by Merrill and Pastor Architects;
State Street Village, Illinois Institute of Technology, Chicago, by Murphy/Jahn;
Skybridge at One North Halsted, Chicago, by Perkins & Will;
Salt Lake City Public Library, Salt Lake City, by Moshe Safdie and Associates in association with VCBO Architecture;
Taghkanic House, Hudson, N.Y., by Thomas Phifer and Partners.



Honor Awards winners include the Taghkanic House (top); Salt Lake City Public Library (above); and Deutsche Post (left).

Honor Awards in Interiors
American Meteorological Society-Editorial Offices, Boston, by Anmahian Winton Architects;
Co-Op Editorial, Santa Monica, Calif., by Pugh + Scarpa;
Academic Center for Student Athletes at Louisiana State University, Baton Rouge, La., by Trahan Architects;
Carol & Carl Montante Cultural Center, Buffalo, by Cannon Design;
NAI Exhibition *Silent Collisions: Morphosis Retrospective*, Santa Monica, Calif., by Morphosis;
N.Y.C. Public School 42 Queens Library, Queens, N.Y., by Weiss/Manfredi Architects;
Pallotta TeamWorks New Headquarters, Los Angeles, by Clive Wilkinson Architects;
First Presbyterian Church of Encino, Encino, Calif., by Abramson Teiger Architects.

Honor Awards in Urban Design
Chicago Central Area Plan, Chicago, by Skidmore, Owings & Merrill;
Preventing Sprawl in Coyote Valley, San Jose, Calif., by WRT/Solomon E.T.C.;
Mission Bay Redevelopment Plan, San Francisco, by Johnson Fain
The Confluence: A Conservation, Heritage & Recreation Corridor, St. Louis, by The HOK Planning Group and H3 Studio;
UrbanRiver Visions, Mass., by Goody, Clancy & Associates.
S.L.

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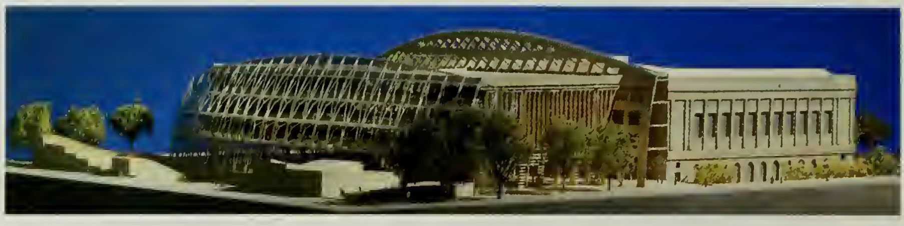
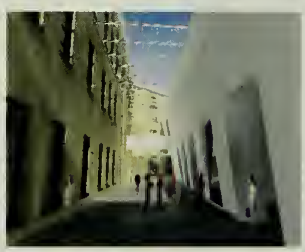
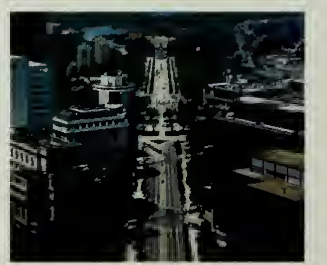


Transforming Philadelphia's parkway with architecture

Philadelphia's Benjamin Franklin Parkway is preparing to become, by decade's end, a major mecca for arts and culture. Despite being home to the Philadelphia Museum of Art (PMA), the Rodin Museum, The Franklin Institute, and the Central Branch of the Free Library of Philadelphia, the 1-mile, axial-oriented parkway, projecting from Center City to the city's northwestern neighborhoods, has long been considered poorly used and underimagined. For many locals, the boulevard is a nicely landscaped highway overwhelmed by traffic.

But the city, some powerful foundations, cultural institutions, and community development organizations are seeking to change this via new signature projects: Richard Gluckman's $80 million renovation and expansion of PMA's Perelman Building, Moshe Safdie's $110 million Central Branch Library addition and renovation, Tadao Ando's new $45 million Calder Museum, and the Olin Partnership's new streetscape and traffic pattern plan, which includes Philadelphia-based Cope Linder's new $5 million lighting scheme.





Safdie's Central Branch Library addition (top) and Gluckman Mayner's PMA addition (middle) will be added to the parkway (above). Will the Barnes be next?

Added to these initiatives is the possible relocation to the parkway, pending court approval, of the famed but financially troubled Barnes Foundation and its multibillion-dollar art collection. The museum currently operates in the Philadelphia suburb of Merion. The move is spearheaded by $150 million from Philadelphia's Pew Charitable Trusts, the Lenfest Foundation, and the Annenberg Foundation for an endowment and a new building, which rumors suggest Renzo Piano may design.

Suddenly, the idea of an arts mecca seems well-grounded. But this is not a simple "if you build it, they will come" redevelopment project. To bolster tourism and strengthen an already important economic engine through architecture, the city must first resolve several design issues.

Maxine Griffith, executive director of the Philadelphia City Planning Commission, says, "What needs to happen is to knit the environment together by creating new opportunities for generating life without losing the [majestic] ambience of the place." These new opportunities involve, among other ideas, developing small community parks to increase pedestrian traffic, and conducting parking, vehicular traffic, and public transit studies to improve access to—and visitor friendliness of—the parkway. What's also needed, says Meryl Levitz, president and C.E.O. of the Greater Philadelphia Tourism Marketing Corporation, is a broader vision to unify the parkway institutions with the surrounding neighborhoods and to bring nighttime activities to the parkway. "We've found out that just because [visitors] go to the Franklin Institute doesn't mean they're going to walk down the parkway to the Art Museum."

Pending such improvements, the parkway could become an urban gold mine. According to a 1998 report by the Pennsylvania Economy League-Eastern Division, the arts in Philadelphia generate $564 million in annual spending, 76 percent of which comes from those living in the region. A revitalized parkway could both draw more visitors from outside the region and better encourage them to spend. "Every dollar invested in the arts," the report also reads, "supports $2 in total regional spending; every $25,000 in spending supports one job." Translated, the city could reap an additional $480 million in spending, for an annual total, based on 1998's figure, of $1.044 billion, with support for 41,760 jobs. *Joseph Dennis Kelly II*

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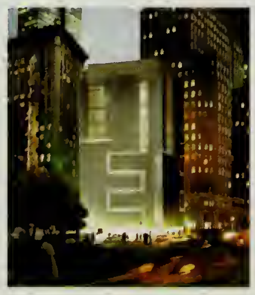
Amid protest, Cloepfil unveils new design for 2 Columbus Circle



2 Columbus Circle's future?

While preservationists filed lawsuits to try to block the sale of Edward Durrell Stone's 2 Columbus Circle in Manhattan, Oregon-based Allied Works Architecture, chosen in 2003 to convert the building for the Museum of Arts and Design, unveiled an updated scheme in January.

Allied Works principal Brad Cloepfil, AIA, describes the updated design as a "continuation and refinement" of the firm's competition-winning proposal. Maintaining the terra-cotta recladding of the firm's original design, the scheme introduces a 30-inch-wide glass strip that travels across the building's concave Central Park facade and angles into the interior surfaces. This strip, says Cloepfil, "incises the opaque body of the building, bringing in natural light, spectacular orientations to Central Park, and spatial continuity," through new circulation spaces. The structure's notable "lollipop" columns would remain behind 13-foot ground-floor glazing, while a basement auditorium would be restored.

Meanwhile, at press time, February 27 was set for the start of oral arguments in a lawsuit filed by local preservation groups, including the Historic Districts Council, LandmarkWest, and DOCOMOMO, to block the planned May 2004 sale of the building to the Museum of Arts and Design. The suit challenges the property's transfer from the City of New York to the Economic Development Council (EDC), through which the city brokers deals involving public land.

Noting that the New York City Landmarks Preservation Commission has not held public hearings on the historical significance of the structure, the lawsuit asserts that "the city's economic objectives infected the process for considering the potential landmark status of the building and subsequently tainted the environmental analysis that it performed in order to gain legal authorization for the sale." The final sale depends on approval by the Manhattan Borough Board, which meets in March, and the EDC board, scheduled to vote on the matter in May. A ruling on the suit is expected by that time. *Thomas de Monchaux*

D.C. unveils plans to develop Anacostia waterfront

The Anacostia has been called the forgotten river of Washington, D.C. A polluted tributary of the Potomac, it flows south and east of official Washington, skirting many neglected neighborhoods. The recently released Anacostia Waterfront Initiative Framework Plan—four years in the making—will attempt to shift the city's development eastward and physically tie the river to the rest of the city. The plan will guide river cleanup, renewal and redevelopment of waterfront neighborhoods, and the building of four new neighborhoods. Developed by the D.C. Office of Planning, the initiative has attracted more than $1 billion in private and public funds. Over a 20-year build-out period, private investment is expected to exceed $4 billion.

The plan targets 900 acres, 90 percent of them publicly owned, along the 8-mile-long riverfront. By 2011, planners expect to add about 20,000 units of housing and nearly 5 million square feet of office and retail space in new and existing waterfront neighborhoods. The plan identifies 25 new sites for museums and memorials and would link 1,800 acres of open space via parks, trails, and bikeways.

To help map an implementation strategy, the Urban Land Institute and the planning office held a three-day symposium in January. Symposium architects, developers, and officials agreed that cleaning the river and creating connections to it—with activity-oriented parks, trails, and bikeways—should come first. Richard Rogers, the symposium cochair, urged dense, compact urban centers around existing transit hubs and the use of existing neighborhoods as building blocks. "First do no harm," he urged. "Give each zone its own identity; think in terms of neighborhoods, not projects." ***Andrea Oppenheimer Dean***

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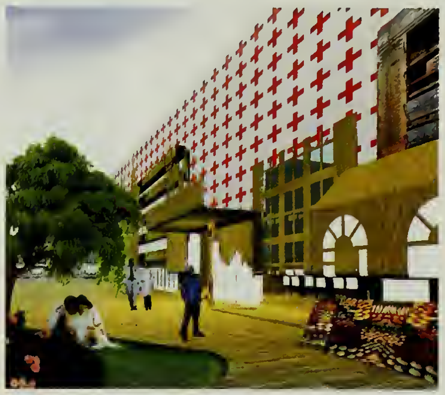
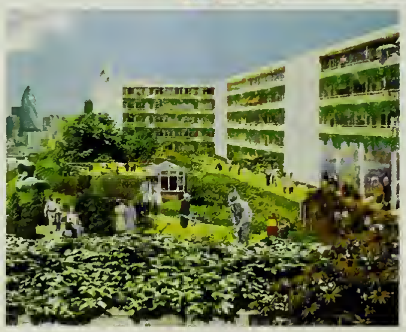
U.K.'s "Healthy Hospitals" envisions better health-care design

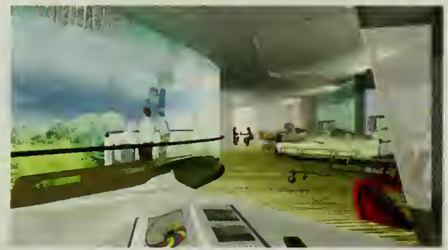
Nurses, officials, and designers have recently launched a campaign to spur improvements in the design of all hospital buildings in Britain. The Commission for Architecture and the Built Environment (CABE) and the Royal College of Nursing (RCN) published their findings in a report called *Healthy Hospitals*, which points out the tendency of most hospitals toward design mediocrity, and outlines a new agenda for successful hospital design as a health-care priority.

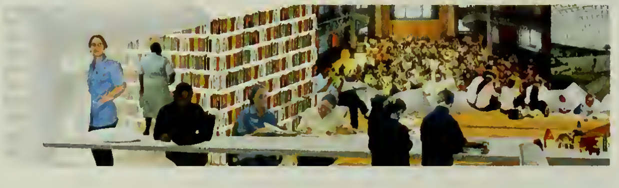
Research among 500 nurses and directors of nursing demonstrates overwhelmingly—and not surprisingly—that a well-designed hospital environment has a positive effect on patient recovery and staff morale. A poorly designed environment, meanwhile, contributes significantly to stress levels.

CABE/RCN's chief demands include uncluttered foyers; spacious interiors with direct and ambient daylight; good integration of architecture, landscape design, and art; versatility in daily use; easily navigated layouts; clear signage; and rooms allowing for patient/staff personalization and privacy. Measures to reduce stress via enhanced color and lighting with the use of dichroic glass are also high on the agenda.









Visionary hospital designs (top to bottom): Fat Architecture's new facade; McDowell + Benedetti's town-square plan; Jane Darbyshire and David Kendall's elegant interiors; and muf art/architecture and Rosetta Life's open spaces.

The campaign is backed up by proposals from four British architectural practices: McDowell + Benedetti envisions the entrance of its proposed hospital as a more welcoming environment, transforming it into a town-square style. Muf art/architecture with Rosetta Life proposes more green spaces, some of which feature art galleries. Architects Jane Darbyshire and David Kendall propose a more intimate feel to bedrooms, making them elegant, one-person spaces. Fat Architecture envisions a colorful exterior composed of rows of red crosses.

CABE invited the public to vote on the hospital design they would prefer, with 53 percent of the votes going to Jane Darbyshire and David Kendall. The feedback will be presented to key decision makers in 2004 as part of CABE's recommendations for improvements.

The campaign comes as the British government has embarked on the largest health-care building program for a generation, aiming to build more than 100 new hospitals by 2010 at a cost of $21.3 billion. Twenty-three are already being built across England at a cost of $3 billion, with about 15 more to be announced imminently. Most of these are to be realized via the Private Finance Initiative, with private companies responsible for their construction and maintenance until ownership passes to the National Health Service at the end of the contract period, usually between 25 and 30 years. *Lucy Bullivant*

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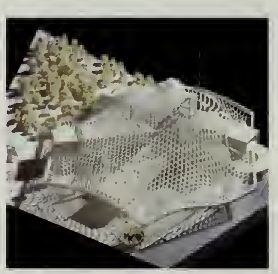
New Centre Pompidou being designed for Metz, France



Ban's Pompidou: tube-heavy.

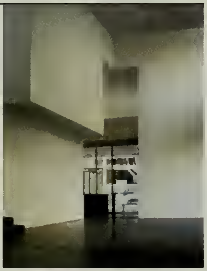
Tokyo-based Shigeru Ban Architects, in association with Jean de Gastines of Paris and Gumuchdjian Architects of London, has won the design competition to build the new Euro Pompidou Centre in the city of Metz, 3½ hours east of Paris. Commemorating the 30th anniversary of the opening of the Pompidou Centre in Paris, the new facility is scheduled to open in 2007.

A large pavilion set within a new park, the museum will consist of both permanent and temporary exhibition space. Three climate-controlled steel-truss tubes, measuring 328 by 49 feet apiece, will house the permanent collection and frame views of the city's train station and cathedral.

Beneath the tubes will be the forum for temporary exhibitions. A vast indoor/outdoor space, the forum will be encased with movable glass shutters, while mammoth curtains will cut the light as needed. Inspired by a woven bamboo Chinese hat, a giant, hexagonal umbrella made of woven steel and plywood protected by a translucent membrane on top will cover the entire complex.

"In the summer we take off clothes. In the winter we wear more," says Ban. "I want to design a space that can be changed depending on the climate or occasion." *Naomi Pollock*

In D.C.: Swiss ambassador's residence

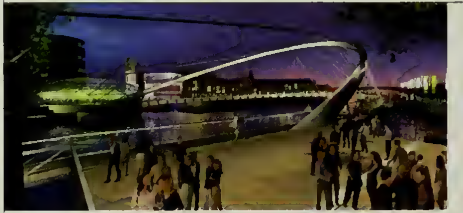


A conceptual design by Steven Holl, FAIA, and Justin Russli of Lucerne, Switzerland, has been selected in a competition for the Swiss ambassador's residence in Washington, D.C.

The parklike site inspired Holl's plan for the 14,000-square-foot, two-story building, in which a hilltop piazza in front of the north-facing front entrance will become the foreground for a direct view to the Washington Monument. The space, Holl says, will create a "kind of urban precinct."

The building's cladding of board-formed, slate-gray concrete, its structural glass plank with white insulation, and its slate trim are all inspired by Holl's memory of Switzerland from several visits. He envisions gray and white snow and ice against charcoal-colored rock.

Furthermore, the building's understated image, Holl says, with its grass-covered roof and copious wall insulation, will be about energy conservation, rather than consumption. *Andrea Oppenheimer Dean*



Rogers' bridge in Glasgow will be a destination in itself

Richard Rogers Partnership has won an architecture competition to design a new pedestrian bridge across the River Clyde in Glasgow, Scotland. The winning scheme, called "Neptune's Way," will connect Tradeston, a redevelopment area, with the financial district of Broomielaw. The $69 million undertaking is scheduled to begin construction in August 2005.

"Neptune's Way is clearly a piece of 21st-century architecture," says Charlie Gordon, competition chairman. "The new bridge will be a destination in its own right rather than simply the quickest way to cross the river."

Plans call for a cable-stayed compression-arch bridge that sweeps across the river in an elliptical crescent. The continuous curve and gradual ramp of the structure allow common access for all users, while the deck alignment creates a variety of views. Additionally, there will be two new landscaped parks at either end of the bridge with public pontoons for river taxis at the North bank and a new nightclub at the South bank. The project is slated for completion in 2007. *Tony Illia*

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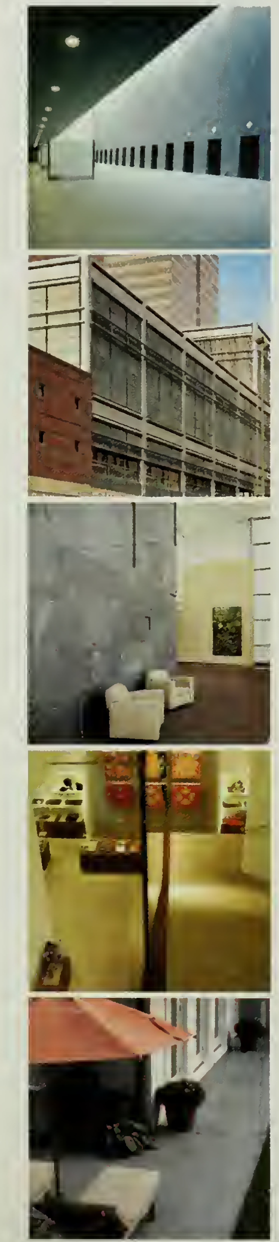

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McGraw-Hill Construction Dodge Index

Construction levels remained stable in 2003

The McGraw-Hill Construction/Dodge Index reveals an overall healthy level of construction activity in 2003.

Overall construction increased by 3 percent, bringing total construction starts to $518.6 billion in the U.S. As in recent years, levels were particularly bolstered by a robust volume of single-family housing, which showed a 12 percent gain.

For other building types, last year's performance was more varied. School construction continued to move at a brisk pace, but the tough fiscal climate for state and local governments had a dampening effect on health-care facilities, museums, churches, and convention centers. Commercial building in 2003 posted its third consecutive decline, due to a further loss of momentum for offices and warehouses. At the same time, the commercial decline was cushioned by gains for hotels and stores, with the latter aided by the trend toward open-air shopping centers. And apartment construction was able to see moderate growth in 2003, supported by continued efforts at downtown revitalization.

Predictions for 2004

For 2004, the strengthening economy will contribute to further growth for stores and hotels, plus the start of a turnaround for the office market. While the fiscal stress for the states is now beginning to ease, it's likely to be another year before the institutional building types are able to see renewed expansion.
Robert Murray, chief economist, McGraw-Hill Construction

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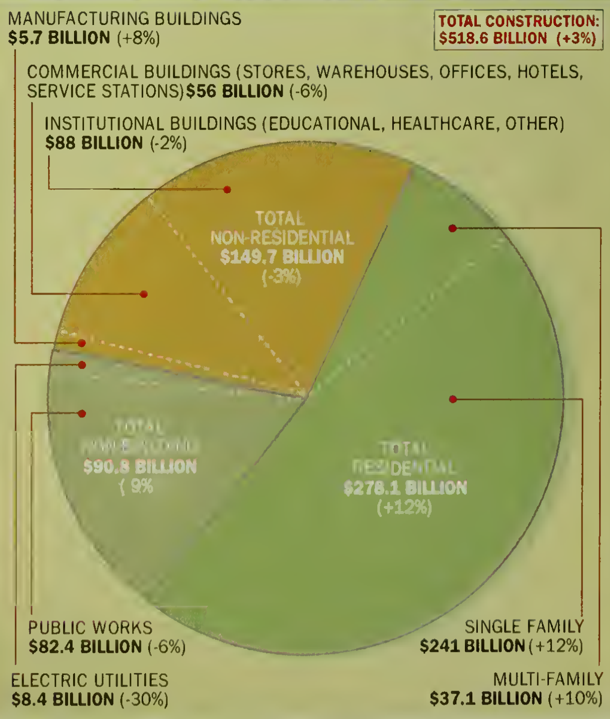

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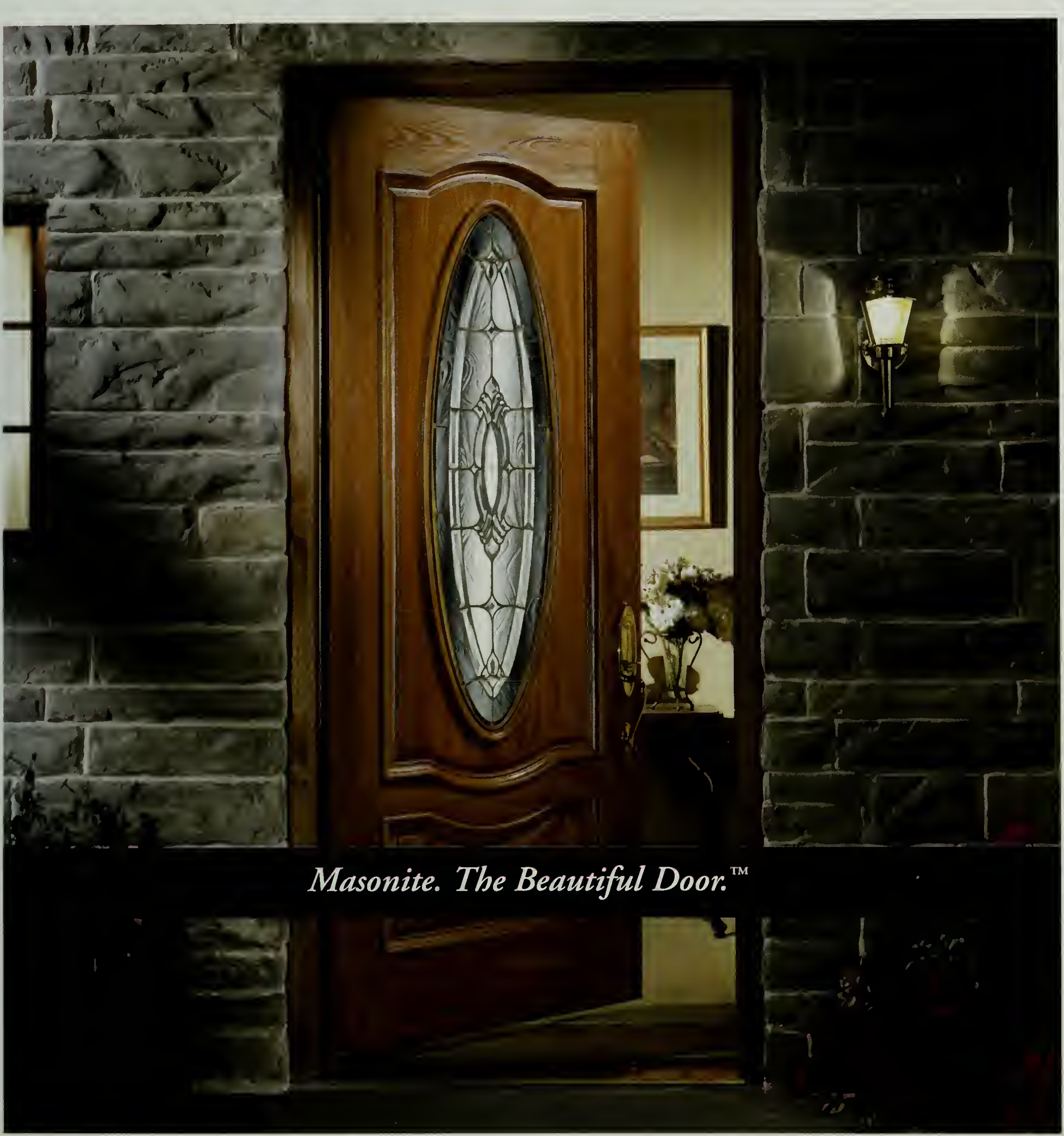

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News Briefs

Gehry's new facade for the Ontario art museum.

Gehry unveils design for Art Gallery of Ontario

Frank Gehry,FAIA's design of a $148 million, spatially redeveloped Art Gallery of Ontario (AGO) was unveiled in his home town of Toronto on January 28.

The revamped AGO has been designed "from the inside out to simplify the interior" and make it less confusing to visitors, Gehry said at the event.

The entrance will be shifted to the center, aligned with the gallery's classical 1901-era central court, topped by a glass roof and dominated by a spiral staircase leading to galleries on new third and fourth floors. Other changes include a new 70-foot-high, 600-foot-long titanium and glass canopy and interior promenade extending along the entire block of the main facade, exposing a sculpture gallery. A new four-story, titanium and glass wing, whose final design is still unsettled, will house a center for contemporary art.

When the transformation is completed, likely in 2007, the AGO will have added 97,000 square feet of new space and renovated 190,000 net square feet, increasing its overall size by 20 percent. *Albert Warson*

New York's Time Warner Center opens

The Time Warner Center, one of the largest developments in New York City history, opened with a black tie gala celebration on February 4.

Located on the west side of Columbus Circle and designed by David Childs, FAIA, of Skidmore, Owings & Merrill, the 54-story, 2.8-million-square foot building will instantly transform its neighborhood. Inside are shops comprising the 347,000 square feet of "Shops at Columbus Circle"; offices, including Time Warner's headquarters and CNN's broadcast facilities; ultra-luxury apartments (the most expensive apartments at One Central Park Condominiums reach into the $50 million range); The Mandarin Oriental, a boutique hotel with 251 guest rooms; and the yet-to-open Jazz at Lincoln Center, the first major venue created specifically for jazz, with three theaters totaling 1,970 seats.

The building, which includes two dark glass towers rising from a central concourse, is trapezoid-shaped to fit within the unusual street grid and to maximize views of Central Park. *S.L.*

The Time Warner Center.

Eugene Hopkins named AIA president

Eugene C. Hopkins, FAIA, senior vice president of the national firm SmithGroup, was inaugurated as the 80th president of the American Institute of Architects (AIA) during ceremonies held at the Library of Congress in Washington, D.C.

Hopkins succeeds North Carolina architect Thompson E. Penney, FAIA, and will represent the nearly 72,000 members of the AIA in the coming year *S.L.*

Joseph Fujikawa dies

Chicago architect Joseph Y. Fujikawa, founding principal of Fujikawa Johnson and Associates, died earlier this month at 81.

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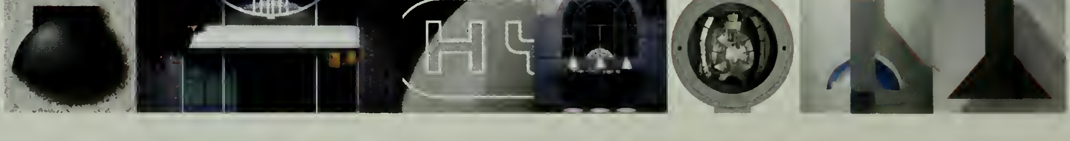

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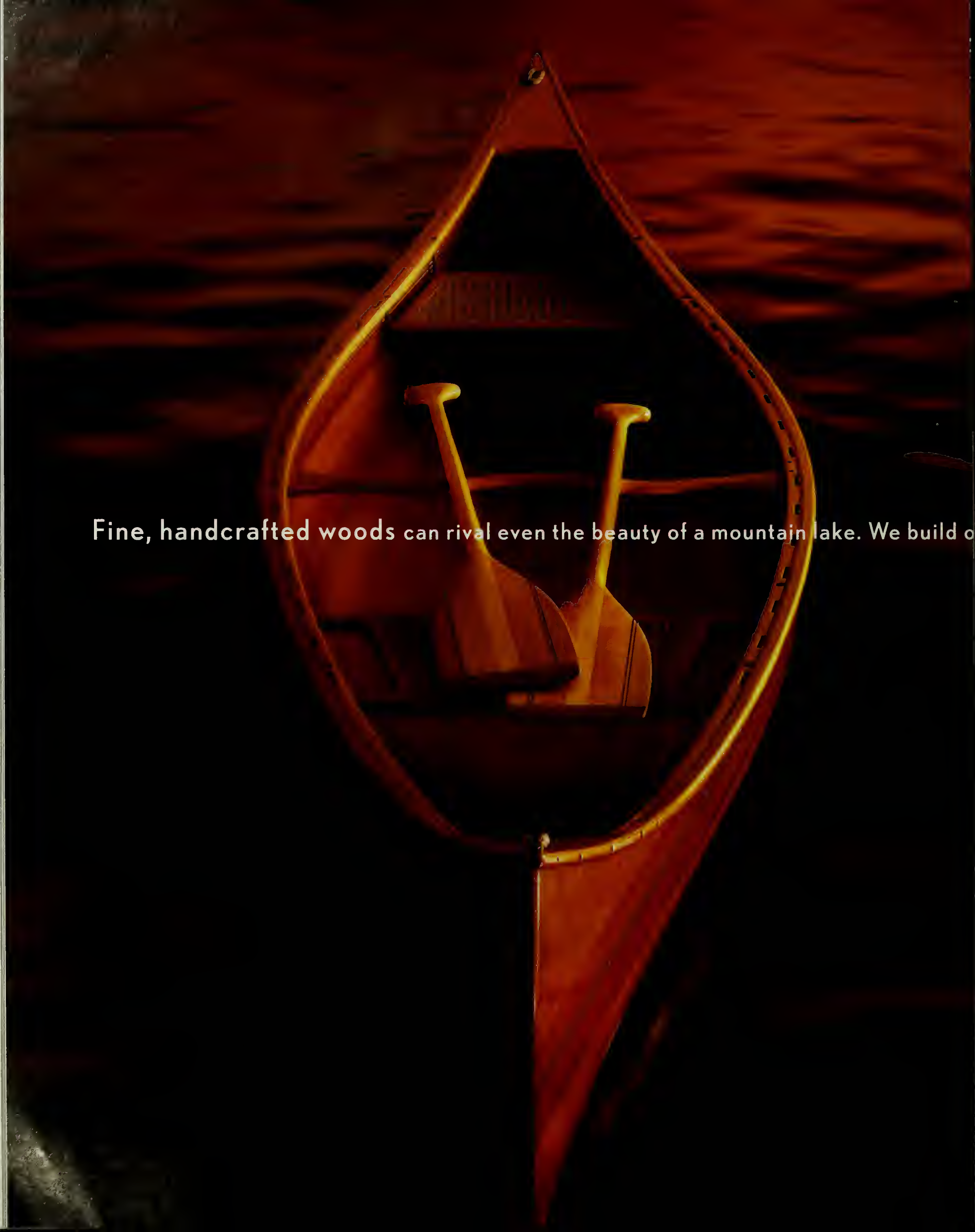
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Dates & Events

New & Upcoming Exhibitions

Italian Mosaic Design
Brooklyn, N.Y.
March 1–May 31, 2004
The history, innovation, and contemporary uses of glass mosaics will be the subject of this exhibition being mounted by UrbanGlass. The exhibition focuses primarily on Italian mosaic design, in particular the creations of Vicenza-based Bisazza Mosaico, considered to be the world's leading producer. At the Robert Lehman Gallery. Call 718/625-3685 or visit www.urbanglass.org.

Envisioning Architecture: Drawings from the Museum of Modern Art, New York
Washington, D.C.
March 20–June 20, 2004
The broad spectrum of 20th-century architecture and the depth of its artistic expression are revealed in this selection of works from MoMA's extraordinary collection of architectural drawings. The drawings, by more than 60 architects, have been integral to the development of modern architecture. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org. (Also see next page.)

Jorn Utzon: The Architect's Universe
Humlebaek, Denmark
April 2–August 29, 2004
This exhibition will illustrate Utzon's working method—the process—focusing on his work and his sources of inspiration. Utzon, best known for his design of the Sydney Opera House, was awarded the 2003 Pritzker Architecture Prize. At Louisiana. Call 45/4919-0719 or visit www.louisiana.dk.

Ongoing Exhibitions

Design Excellence: Public Patronage of Architecture and Art
Washington, D.C.
Through March 31, 2004
An exhibition to help people realize the importance of architecture in their lives, and to provide practical tools to use that knowledge to enrich their life experiences and transform their communities. At the Octagon Museum. Call 202/879-7766 or visit www.theoctagon.org.

Hopping Fences: Influences in Modern Living
Philadelphia
January 16–May 2, 2004
This project showcases five interdisciplinary design/build firms from the Philadelphia area. The multilayered exhibition is conceived as an alternative to traditional furniture or design shows by acting as a conceptual reflection on how design impacts on and is influenced by modern urban living. Call 215/545-0767 or visit www.philartalliance.org.

The Maine Perspective: Architectural Drawings, 1800–1870
Portland, Maine
February 7–May 22, 2004
The first of a three-part series that will examine

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the history of Maine architecture, this exhibition encompasses drawings made between 1800 and 1870. At the Portland Museum of Art. For more information, call 207/775-6148 or visit www.portlandmuseumofart.org.

Affordable Housing: Designing an American Asset
Washington, D.C.
February 28–August 8, 2004
This exhibition demonstrates that low-cost housing need not be of low quality and explores the potentially far-reaching benefits of good design for residents and their broader communities. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Lectures, Conferences, Symposia

2004 National Green Building Conference
Austin, Tex.
March 14–16, 2004
The National Association of Home Builders is holding their conference "Bringing Home the Green" in the birthplace of the green building movement to examine and present why a growing number of home builders are "going green." At the Austin Hilton Hotel and Convention Center. Call 800/368-5242 or visit www.nahb.org/greenbuilding.

Envisioning Architecture
Washington, D.C.
March 22, 2004
Symposium in conjunction with the Museum of Modern Art exhibition of its collection of nearly 1,000 architectural drawings by the most eminent architects of the 20th century. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Learning from World Heritage: Lessons from International Preservation & Stewardship of Cultural & Ecological Landscapes of Global Significance
Natchitoches, La.
March 25–27, 2004
This symposium will be an opportunity to learn about the most up-to-date thinking on the identification, management, and protection of cultural and ecological landscapes. Visit www.icomos.org/usicomos.

Enclave
New Haven, Conn.
March 26–27, 2004
A symposium examining a unique and critically important site of every major city, its ports. An international roster of scholars, artists, and writers will discuss how ports and airports, essential hubs of commerce, are being reshaped by the global economy. At the Yale School of Architecture. Call 203/432-2288 or visit www.architecture.yale.edu.

Seven Houses One Neighborhood
Houston
March 27–28, 2004
The Rice Design Alliance will hold its 27th annual architecture tour, highlighting a distinctive Houston neighborhood: the David Crockett Addition. Call 713/348-5924 or visit www.rda.org.

Daniel Solomon: Cloth from Threads
New Haven
March 29, 2004
Projects of Solomon's firm include the Fine Arts Building in Berkeley and the Beth Israel Memorial Chapel and Cemetery in Houston. Solomon, a professor of architecture at the University of California, Berkeley, will present this lecture at the Yale School of Architecture. Call 203/432-2288 or visit www.architecture.yale.edu.

Homeownership: The American Dream
Washington, D.C.
March 30, 2004
Nicolas Retsinas, director of Harvard's Joint Center for Housing Studies, will deliver a keynote address for the National Building Museum's symposium on affordable housing, outlining the economic, policy, and practical issues related to homeownership today. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Affordable Housing: Good Design Makes Good Living
Washington, D.C.
March 31, 2004
Four sessions will focus on grassroots design, the government as a design partner, technology as a catalyst for good design, and the social and economic benefits to be gained by a successful marriage between good design and affordable housing. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Frank Gehry: Current Work
New Haven
April 1, 2004
The Pritzker Prize winner's most recent masterworks are the Walt Disney Concert Hall in Los Angeles and the Richard B. Fisher Center for the Performing Arts at Bard College, New York. Gehry is the Louis I. Kahn Visiting Professor of Architectural Design at the Yale School of Architecture. At the Art and Architecture Building. Call 203/432-2288 or visit www.architecture.yale.edu.

2004 Kitchen and Bath Industry Show and Conference
Chicago
April 1–4, 2004
This is the largest annual event of its kind, offering the latest in cutting-edge design, creative application of product lines, and new products. At Chicago's McCormick Place. Call 800/933-8735 or visit www.kbis.com for further information.

Zaha Hadid: Current Work
New Haven
April 5, 2004
The London-based architect is the Eero Saarinen Visiting Professor of Architectural Design at Yale. At the Art and Architecture Building. Call 203/432-2288 or visit www.architecture.yale.edu.

The Philadelphia Furniture and Furnishings Show
Philadelphia
April 16–18, 2004
This show offers the finest in handmade objects for the home and office, presenting a gathering of the work of decorative artists from all over the world. Call 215/440-0718 or visit www.pffshow.com.

Competitions

City Lights Design Competition
Deadline: March 12, 2004
An international design competition for a new streetlight for the City of New York. The winning design and its variations will be used to light streets, sidewalks, and parks within the city's five boroughs. For more information, visit www.nyc.gov/buildnyc/citylights.

Broadway Square Design Competition
Fargo, North Dakota
Deadline: March 15, 2004
Competition for a design for Broadway Square that will enhance the space and be compatible with the Broadway streetscape and surrounding features. Call 701/241-1474 or visitwww.cityoffargo.com/

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Dates & Events

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2004 AIA St. Louis Photography Competition
Deadline: March 15, 2004
Open to architects registered in the U.S., associate members of AIA, and student members of AIAS. Call 314-621-3484 or visit www.aia-stlouis.org.

2004 Business Week/Architectural Record Awards Program
Deadline to order submission package: March 19, 2004
Deadline: April 16, 2004
These awards honor architectural solutions that help clients achieve business goals through measurable results and distinguished collaboration between architect and client. For more information, call 202/626-7524 or e-mail bwarawards@aia.org.

The Frederick P. Rose Architectural Fellowship
Deadline: March 29, 2004
The Fellowship funds visionary partnerships between nonprofit organizations and new architects with the goal of making improvements in struggling communities nationwide. Visit www.enterprisefoundation.org/RoseFellowship/.

Inside the Not So Big House Call for Submissions
Deadline: April 2, 2004
Susanka Studios is seeking submissions of architecturally designed houses to be featured in an upcoming book entitled *Inside the Not So Big House*. Visit www.notsobighouse.com.

International Ideas Competition 2004: Shrinking Cities—Reinventing the City Berlin
Deadline: April 15, 2004
The objective is to identify innovative approaches capable of qualifying the urban transformations associated with the phenomenon of shrinkage and to develop new ideas about the city based on the specific qualities of shrinkage itself. Visit www.shrinkingcities.com.

E-mail events and competitions information two months ahead of event or submission deadline to ingrid_whitehead@ mcgraw-hill.com.

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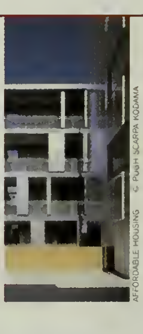
March 22
Envisioning Architecture
Matilda McQuaid, former associate curator, MoMA, New York

March 30–31
Symposium
Affordable Housing: Good Design Makes Good Living
details available online, www.NBM.org

exhibitions


AFFORDABLE HOUSING © PUGH SCARPA KODAMA

Affordable Housing: Designing an American Asset
through August 8

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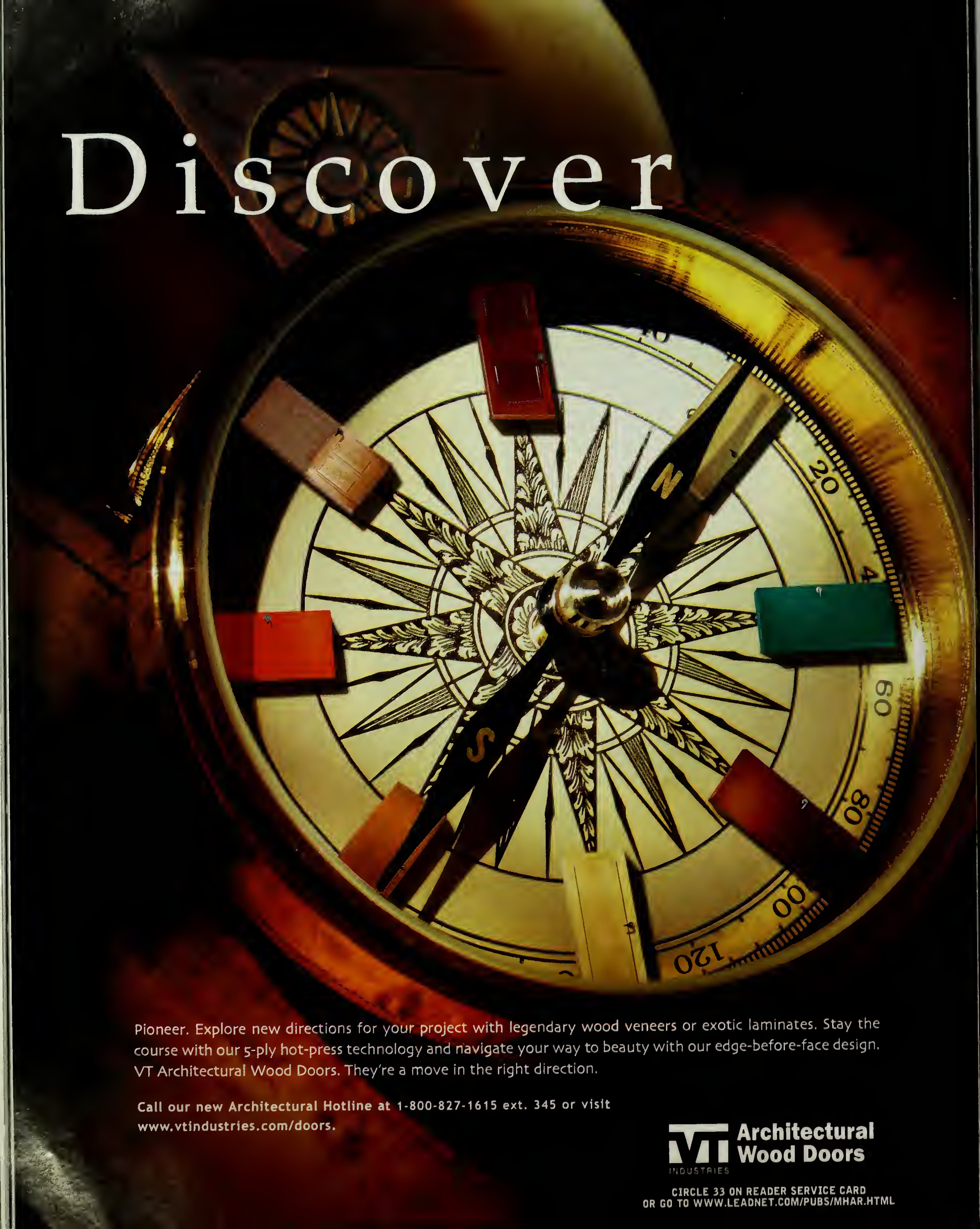

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For and about the new generation of architects

archrecord2

FOR THE EMERGING ARCHITECT

This month ar2 speaks to Design architect Li Hu. Born and raised in China, Li Hu currently lives and works in the U.S. His work with Steven Holl Architects and his own firm, OPEN architecture, have led him to projects in China. Below is just a small sampling of his output. Please go to architecturalrecord.com/archrecord2/ for much more on this young architect.

DESIGN

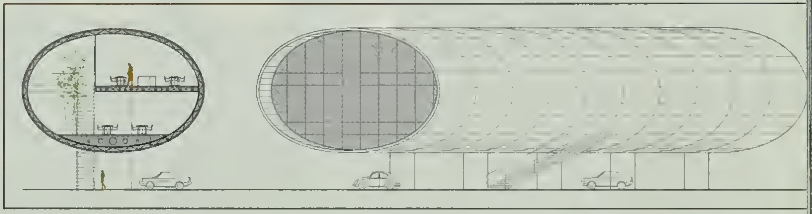
One architect, many facets

Li Hu insists that he finds time to relax on Sundays, but upon hearing of everything he is involved in, you might wonder how true that statement is. He began his studies at Tsinghua University in Beijing and completed his M.Arch. at Rice University in Houston in 1998. After time spent in Princeton, N.J., he began work with Steven Holl Architects, where he is a project architect today. During his time there, Li Hu has not only colaunched an architectural journal, but he has also started an architectural firm.

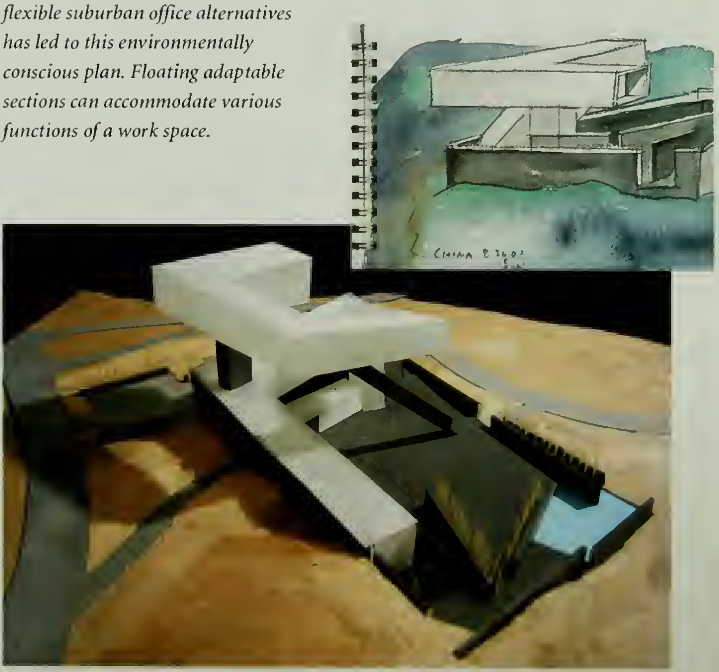
At Steven Holl Architects, Li Hu has been involved in several high-profile projects and competitions. Many projects have been U.S.-based, but recently several have him working in his homeland of China, currently on projects in Nanjing and Beijing. "Our Nanjing projects are Holl's first in China," says Li Hu. "The Art and Architecture Museum in Nanjing will be the first contemporary museum built in China."

In a fateful meeting between Li Hu, architect Yungho Chang, and Steven Holl, the three realized a need for a new type of architectural publication. Made in New York, printed in Beijing, and encompassing issues worldwide, the bilingual publication *32:Beijing/New York* (above) does not attempt to answer questions. Instead, the journal acts as an open forum. "Each issue purposely does not have a theme," explains Li Hu. "Instead of compartmentalizing our ideas, our aim is to ask questions about urgent political and sociological issues concerning architecture, not answer them." The impressive roster of past contributing writers includes Kenneth Frampton, Lebbeus Woods, and Michael Bell. With the fourth issue coming out soon, Li Hu notes, "Our circle of contributors is expanding as is our circulation."

Along with his wife, architect Wenijing Huang, Li Hu formed OPEN architecture studio in 2002. "OPEN's manifesto is to make architecture more accessible to more people," explains Li Hu. "We explore ways to build a platform for open collaboration among architects, end users, and developers." In 2003, OPEN won a competition for the Shenzen Senior Activity Center in China. Li Hu is now conducting research on suburban homes and offices for an ecological project using a tubular design that he hopes to implement there. The architect explains that China is "rapidly importing ideas from America, and especially has a fascination with American suburban life." *Randi Greenberg*



Eco_Tube
OPEN architecture's research on flexible suburban office alternatives has led to this environmentally conscious plan. Floating adaptable sections can accommodate various functions of a work space.



Nanjing Art and Architecture Museum, Nanjing, China
Steven Holl Architects' winning design features a hovering translucent form, a tea house, and a curator's residence. Due for completion in 2005.

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Doing business in China: A primer for the daring, shrewd, and determined

Practice Matters

By Tom Larsen, AIA

If you're an architect bound for China, here's some advice from veterans: Be as good at negotiations as you are at winning competitions; *do not* underestimate the competitive drive and business savvy of owners, developers, government officials here; *do* believe people when they say that Chinese clients and design professionals are quickly becoming sophisticated; they are rapidly gaining technical knowledge, and they demand excellence. One more thing—think about packing an extra bag; those who venture out for the long haul stand to make the most of what it takes to get established here.

Make money and do design, too

The export-fueled growth of the Chinese economy has been in the double-digits for almost 20 years. While officials report the economy grew by only 9.1 percent in 2003, China "honestly may not know how fast it's growing," according to a story in the January 19, 2004, issue of *BusinessWeek*. It notes that Morgan Stanley estimates growth may really be more like 15 percent.

China's transformation into an industrial, high-tech, and services-oriented economy has produced a construction boom. That, in turn, has created the most active market for architectural design services outside the U.S. It's a business opportunity many firms can't afford to ignore.

Tom Larsen is a management consultant for architects, designers, and engineers. He can be reached at trlarsen@larsen-associates.com.

There's another equally important hook for American architects. They might get to design world-class buildings that they would never get to do in the U.S., and actually see them built. "The Chinese want international-quality design, and in fact, technologically, they want to surpass things we do in the U.S.," says Gene Schnair, AIA, partner in SOM's San Francisco office.

Structuring your business

There are three basic ways that firms can do business here. In the first, the U.S. firm contracts with a Chinese client but does not open an office here. The main drawback is that currency restrictions make it hard for Chinese clients to pay for services provided by foreign companies. To get around this, clients usually hire "tendering companies" to make offshore payments on their behalf. These companies must be authorized by the Chinese government. Architects need to understand currency restrictions and plan for added costs and bureaucratic delays.

Those who are ready to open offices here may do it in one of two ways. Opening a "representative office" (RO) allows a firm to have a base from which to do marketing for the main office back in the U.S., and to do things such as market research. But ROs can't engage in contracts for services in China. The second way is to set up as a "wholly foreign owned enterprise," or WFOE. These limited-liability companies can employ Chinese nationals and enter into contracts in local currency. Architecture and engineering offices set up under the Ministry of Construction of the People's Republic of China's Regulations for Foreign-Invested Construction and Engineering Design Enterprises, Decree No. 114. (See www.cin.gov.cn/law/depart/2002110401e.htm.)

For all firms, even those without local offices, working in China is expensive. Professionals who have done a lot of work here say that almost all business is conducted in Chinese, even with Chinese who speak English. They note often younger, less experienced architects who speak Chinese have more influence with clients than experienced American partners. Firms active in China have invested significant sums to hire Mandarin-speaking employees, consultants, and legal counsel to translate codes, regulations, contracts, and negotiations. Travel and housing costs are also not cheap. "You can't imagine the huge human toll on senior management, just in terms of travel. You need really committed people," says Paul F. Jacobs III, AIA, chairman of RTKL, Baltimore.

Win Competitions ...

Designers need to be aware that, because the state owns the land, almost all work is awarded either by invited or open competitions—with a twist. In invited competitions, architects are asked to participate by a sponsor, the owner or developer commissioning the work, and given a program. Juries comprise members of different governmental agencies, an independent panel of experts, and usually, but not always, the client.

Competitions don't always produce optimal results for the sponsor or designer. The process forces superficial solutions that may not address the client's fundamental needs. "Competitions make for image-based projects; you have to focus on the big idea to impress the judges," says Schnair.

The risk-reward ratio for architects who participate in competitions can be quite high. Compensation for participants ranges from nonexistent to stipends that may or may not cover the cost of participating. In any case, the cost of doing business here is high, and a few lost competitions can soak a firm's balance sheet with red ink in a hurry. Firms have to be very honest with themselves about whether they can win a competition, and be disciplined about allocating resources to them. Sooner or later, the Chinese will begin making use of qualification-based selection. In fact, Ray Shick of Gensler's San Francisco office notes, "On interiors projects, we are often selected based on our qualifications."

Last but not least, competition winners only take the projects they are selected to do through design development if they can negotiate the contract. After that, most work is handed over to local "design institutes," government-owned architecture firms who handle construction documents and construction administration. Western firms are legally prohibited from participating in these phases and are too expensive to add much value to the process. While U.S. architects continually lobby for more involvement in construction documentation and administration to ensure quality, they face an uphill struggle.

... Then, win negotiations

Winning a competition doesn't mean you've got the project. "It only means you have the right to negotiate the commission," says Jacobs. Although modern China only started opening its markets up 25 years ago, people here have been trading with the West since Marco Polo's time, and they know how to drive a hard bargain. Negotiating a job here is like trying to become a supplier to Wal-Mart: The owner may imply that since they will likely be awarding lots of contracts in the future, they should be given a deep discount—for world-class work, of course. Architects must resist the temptation to lower fees and "buy work" in hopes of raising fees on the next project. Next time the client will start negotiations at an even lower price, if there even is a next time. Clients use local architects' costs as their benchmark, says James F. Porter, AIA, of Altoon + Porter Architects, Los Angeles. "Clients start with the idea that a local firm will cost one-third of what an international firm will, and negotiate from there. You have to convince the client that your expertise is worth more, or you will not get enough fee to do a good job."

ARCHITECTS MUST RESIST THE TEMPTATION TO "BUY WORK" IN THE HOPE THAT THEY CAN RAISE FEES ON THE NEXT PROJECT.

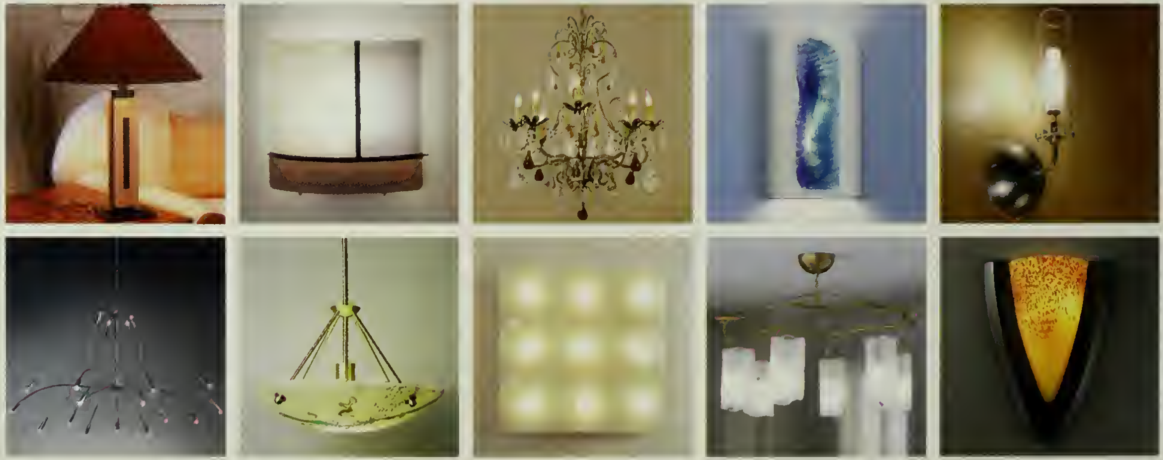
Part of being tough means paying close attention to the contract. Contracts are written in Mandarin, so get the best lawyer you can afford. In the U.S., architects usually don't elaborate much beyond what standard AIA contracts describe as the end of each design phase. In China, contracts must state exactly what deliverables the client will receive both at the end of each contract phase and at milestones tied to a payment schedule along the way. Those who don't nail these down may find themselves making endless changes, or simply not getting paid. Some architects insist on a "pay then work" model, where a retainer is paid, in dollars, every month. Also, firms must give clients exactly what they promise during contract negotiations. If a client has been told a design principal will be leading the team, do not substitute an associate.

The ownership of intellectual property rights (IPRs) is another point for contract negotiations. Clients who commission Western architects to design buildings are making a significant investment. They don't want the architect to resell the design to a competitor any more than the architect would want a client to copy a protected design without paying royalties for it. In China, the clients have an upper hand because it is so difficult for foreigners to enforce IPRs here. The most practical advice may be to accept the fact that work can always be copied, negotiate a good fee up front, and call it a day.

Probably the greatest danger is not the misappropriation of a design, but that a client will have a design modified to its detriment yet keep the original design architect's name on it for marketing purposes. Jeff Wolfson, a partner who specializes in IPRs with Winston & Strawn, a law firm, suggests that to protect the integrity of their rights, architects negotiate with their clients either co-ownership of copyrights or mutual consent agreements.

Commitment begets opportunity

It might appear that because U.S. firms are limited to schematic and design-development services, over the long haul it will be difficult to maintain a competitive advantage.



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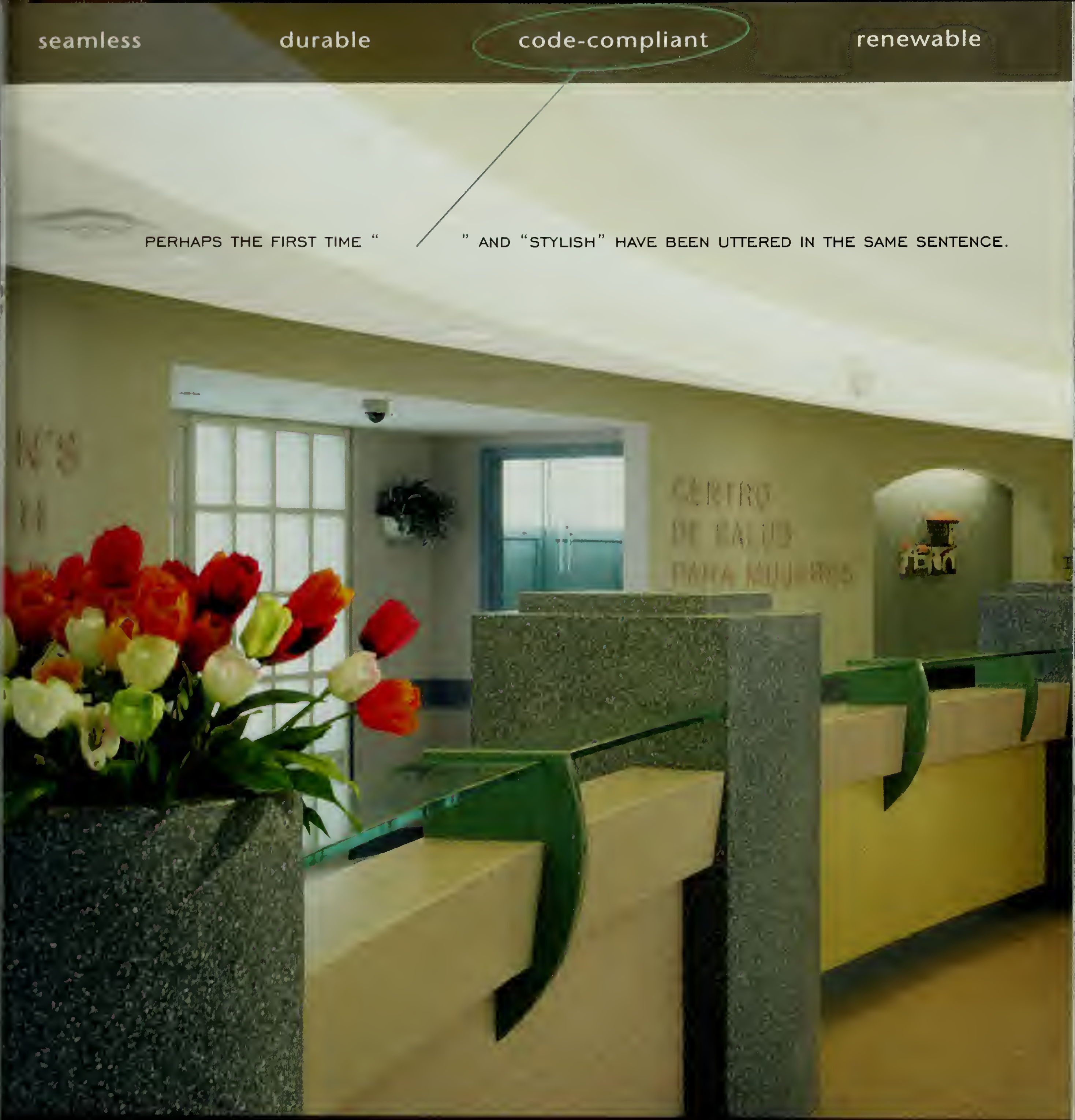
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Western firms can't compete on fees profitably, nor are they able to offer the ease and high level of service that comes with a local architect. But at the moment, the market is robust and growing. Clients not only want their buildings to reflect China's increasing importance in the world; they also want to participate in the design process. "Our Chinese clients understand that the international firms have experience with certain project types that they cannot yet source locally. They acknowledge that they will have to pay a premium, at least in the near term, to import this expertise," says Jeffrey J. McCarthy, AIA, a partner in SOM's Chicago office. And now that China has been accepted into the World Trade Organization, Western firms are finding it easier to get work visas for employees and to set up WFOEs, and the protection of IPRs is improving.

Chinese firm structure is starting to change, too, and that will eventually shift the opportunity equation. Those who work at the design institutes are eager to learn and are quickly picking up technical knowledge. "When we interview design institutes and see their work, their imagery is very mature. It is only a matter of time before they start catching up in detail and substance," says Schnair. The government is also starting to privatize some of the institutes, forcing them to change, as well. Now that they're competing for employees and have to pay higher salaries, some of their cost advantages against foreign firms are eroding slightly. Still, these new firms have a way to go before they master the business principles, such as marketing, that Western firms take for granted.

Some believe the larger threat for the U.S. firms will not come from privatized institutes, but from new start-up firms. "We see a lot of U.S.-educated Chinese starting firms that represent both competitive choices for design services and future competitors to U.S. firms. We have to help them develop their practices while we continue to provide value to our relationships with them," says Bill Doerge, a principal with the Chicago office of Perkins & Will. These firms have advantages over the institutes: They're nimbler and already know how Western firms work. They have command of both English and Mandarin, but may lack the government connections still critical in China.

What tomorrow will bring

New firms can still succeed in China if they commit to building truly international practices. Firms that are interested in developing business here primarily to offset weakness in the U.S. market are unlikely to make it. "Commitment" means that firms will have to establish not just one office, but several, including some in the interior of the country, where new markets are going to develop. American partners are going to have to relocate from the U.S. to the mainland. To be considered for future work, these firms will have to develop a Chinese "brand," a "face." These offices will be staffed with local talent, some of whom will be put on management tracks.

Firms that succeed in establishing offices here may one day actually export cost-effective, technical services back to their offices in the U.S. That will allow architects in the U.S. offices to focus on work that can only be done locally, rather than producing labor-intensive work such as contract documents, 3D animation, and renderings. Sound far-fetched? Today, much of what we consume in the U.S. comes from China. Why not architectural services, too? As clients worldwide push for "faster, better, and cheaper" design, China is bound to play an important role. Take a page from other industries and look to China as not only a potential market, but a new source of expertise that will make your firm more competitive. ■

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Out with the old and in with the new around China's Three Gorges Dam. But at what cost?

Correspondent's File

By Jen Lin-Liu

Three Gorges Dam (left) is flooding towns along the Yangtze. Displaced residents move to "New" Wushan (right).

Speaking about a year ago, Chen Zhuyun claimed he wasn't sad at all, despite knowing that his neighborhood, the old town square, and some of his favorite trees had been destroyed to make way for the Three Gorges dam project.

"That's where my old home was," said the 30-year-old taxi driver in a matter-of-fact tone, staring at the vast plot of land. The last crumbled remains of bulldozed buildings were being carted off, part of the cleanup effort that had to occur before the area was inundated by floodwaters. Within six months, the waters of the Yangtze River were scheduled to rise 443 feet above sea level. Chen shrugged, apparently unmoved by changes brought about by the largest dam project in the world. "I have some pictures. That's enough for memory's sake."

In Wushan—located along the banks of the Yangtze River, 400 miles from Beijing, with a population of 580,000—many resettled residents like Chen aren't looking back. Of course, it's partly because they have been swayed by a huge government publicity campaign, which has emphasized the benefits of the mammoth water project. Forget that the project is affecting 365 townships along the Yangtze River, and an estimated 1.2 million people are being moved to points around the country, by China's own count. Your average Wushan resident could probably recite the project's advantages more quickly than they could tell you about the Cultural Revolution.

Harnessing the Yangtze means that floods will be more easily controlled. Clean and cheap electricity will be readily available. Ships will be able to navigate better, bringing more economic opportunities. It also took just one quick glance up the steep hills—past the "135 m" and "175 m" signs that marked the eventual rise of the Yangtze in meters—to see why residents were hopeful: The sparkling buildings of the "new city" shone like beacons in an otherwise gloomy, often fog-shrouded landscape.

Many of the displaced have been pushed farther up the banks to towns like "New" Wushan. The latest river towns are symbolic of China's ambitious—and sometimes unrealistic—approach to modernization. Wushan's slick exterior could fool anyone. Glittering new buildings line wide avenues. The typical white, bathroomlike tiled

Jen Lin-Liu is a correspondent for The Chronicle of Higher Education. *She has also written for* Newsweek Asia *and The Associated Press.*

Facts About the Three Gorges Dam

After decades of planning and work, China's massive Three Gorges Dam now stands sentry across the Yangtze River. Still a work in progress—it won't be complete until 2009—the gigantic concrete-gravity structure is impounding a lengthy, ribbonlike reservoir stretching to the inland metropolis of Chongqing. Flanked by the world's largest ship locks, which were blasted precisely out of granite outcroppings and lined with concrete, some 25,000 workers have been laboring at a record-setting pace to raise the dam to its 594-foot height. Its purpose is twofold: to limit the great river's devastating floods and produce a whopping 18,200 megawatts of electricity to feed China's power-hungry economy. The first of the project's 26 turbines went on line last year. The $27 billion project has long been the world's largest construction project. ***John Kosowatz***

- **Dam height: 594 feet**
- **Construction-site area: 5.8 square miles**
- **Power output: 18,200 megawatts**
- **Number of turbines: 26**
- **Dam Length: 7,575 feet**
- **Ship-lock height: 558 feet**
- **Ship-lock length: 5,272 feet**

A worker removed pieces of old Wushan.

buildings found elsewhere in China have taken a shiny pink and yellow polish. Guangdong Road, New Wushan's main thoroughfare, is full of upscale stores selling designer clothes and laptop computers. Climbing a maze of stairs rising to the top of the hill reveals a carefully constructed view of tall buildings against a backdrop of the soon-to-be-inundated Yangtze.

"Compared to all the other new towns on the Yangtze, Wushan has the best shot at being successful," says Xing Zhong, an assistant professor at nearby Chongqing University's City Planning and Design Institute, who also consulted on the planning of Wushan. "It has the best location for tourism."

Indeed, authorities are clearly hoping that tourism will keep Wushan alive. Officials optimistically project that once the dam project is completed, an annual 20 million tourists will flock to the largest man-made lake in the world. Nestled in between two of the Three Gorges, Wushan serves as the perfect juncture point for boats going north up the Daning River, a tributary of the Yangtze that takes droves of tourists past a smaller, but still spectacular natural wonder: the Mini Three Gorges.

The primary purpose of building Wushan's new town is still residential settlement, with 45 percent of the new buildings allotted for apartments. But it's telling that more space has been reserved for commercial use (20 percent) than for factories and government-owned operations (15 percent). Much of the commercial space being built will be devoted to tourism and related services, says Xing. A highway that will cut down the commute time between Chongqing and towns lining the Yangtze will allow visitors to reach Wushan in less than 6 hours. The number of hotels in Wushan has increased from one to half a dozen in the past few years. And one of the town's smoke-billowing factories that produces cement will be converted to make souvenirs.

Construction workers are putting the finishing touches on the town square, a $600,000 project, that features glitzy, but so far vacant, storefronts and a big screen that will air public announcements and films. Billboards nearby advertise the town's newest project, a "European Street," with a three-quarter-of-a-million-dollar price tag.

But underneath Wushan's sparkling facade, locals are facing the same old problems that exist in China's other cities. Some residents complain that the relocation efforts have been riddled with corruption. Millions of dollars have been invested in construction, but less has gone into job creation. Many residents have been laid off from state-owned enterprises in recent years and scrape a living out of odd jobs or selling wares and snacks on the sides of streets. Some of the town's prime commercial space remains unoccupied, like the Wushan Department Store, whose tall windows reveal only an empty warehouse.

The success of the site as a tourist destination also remains uncertain. Even after the waters rise to their final point, much of the Gorges, which rise above 3,300 feet, will still be visible. But critics

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have predicted that damming the Yangtze River will create a large "stinking and stagnant" pool of water, adding that the area will be polluted considerably. "One of Wushan's prime attractions to tourists is the clear and beautiful mountain water that flows toward it down the Daning River. That clear mountain water will be infiltrated as the Three Gorges reservoir is filled," says Mu Lan, the Chinese editor of *Three Gorges Probe*, a newsletter published by the antidam organization Probe International.

And like the dam project itself, the physical sustainability of these towns is uncertain. Moving the displaced residents up the hills is the easiest and most logical solution for the government. In doing so, they are brushing aside a very immediate concern: landslides. Locals say that a landslide in August 1999 condemned part of the old town, including the Catholic church, and another landslide occurred last March in the new part of the town. No one was hurt in either incident, but it's been enough to force officials to address the problem. Authorities admit that the Three Gorges area is prone to landslides, but say the problem is being solved. Never mind that their means for solving it are a bit suspect: Around town, construction workers are pouring cement on the many precipitous banks and reinforcing them with steel. But, in the event of a landslide, that may not be enough to save some buildings, which jut out of the town's steep hills and are only supported by skinny cement columns. It should be enough to scare residents, but most seem unconcerned—or passive, at best. "It may be dangerous, but what's to be done about it anyway?" said one resident.

The Chinese government has touted the benefits of relocation, proclaiming that resettled residents are better off than they could ever have imagined. It's true enough that many residents say they prefer the new town to the old one. "I'd say that 70 to 80 percent of the people are satisfied with their new situation," said Father Zhang, a chain-smoking priest who runs the newly built Catholic church that has become a landmark, sitting at the top of Wushan. "They definitely have better housing." Resettled residents brag about their new amenities: private bathrooms, telephone lines, and constant electricity, none of which were standard in the old town.

Even so, the improved conditions have come at a cost, and compensation seems to vary considerably. The Lis, who live in a modern 861-square-foot apartment at the top of Wushan with a panoramic view of the river, were among the fortunate ones. Because they owned their house in the old town, they said they didn't have to pay anything additional to be relocated. Other families have been forced to use their entire life savings or have resorted to taking out mortgages to pay for their new homes. One couple said that they struggle to pay their monthly mortgage payment of $25—the price of a sweater at one of Wushan's posh, but empty, stores. And while about half of the residents displaced by China's massive Three Gorges Dam project have been pushed into nearby new towns, the rest have been set on often difficult journeys that take them as far as Shanghai.

A freewheeling, anything-goes attitude takes over Wushan as the sun dips below the tall peaks of the Gorges. Clusters of ballroom dancers waltz away in the town square, and although the dancing starts to fizzle around 9 o'clock in the evening, the cranes continue to move, and the sledgehammers keep on pounding through the night. Only after all the construction ends will the real test for Wushan will begin. ■

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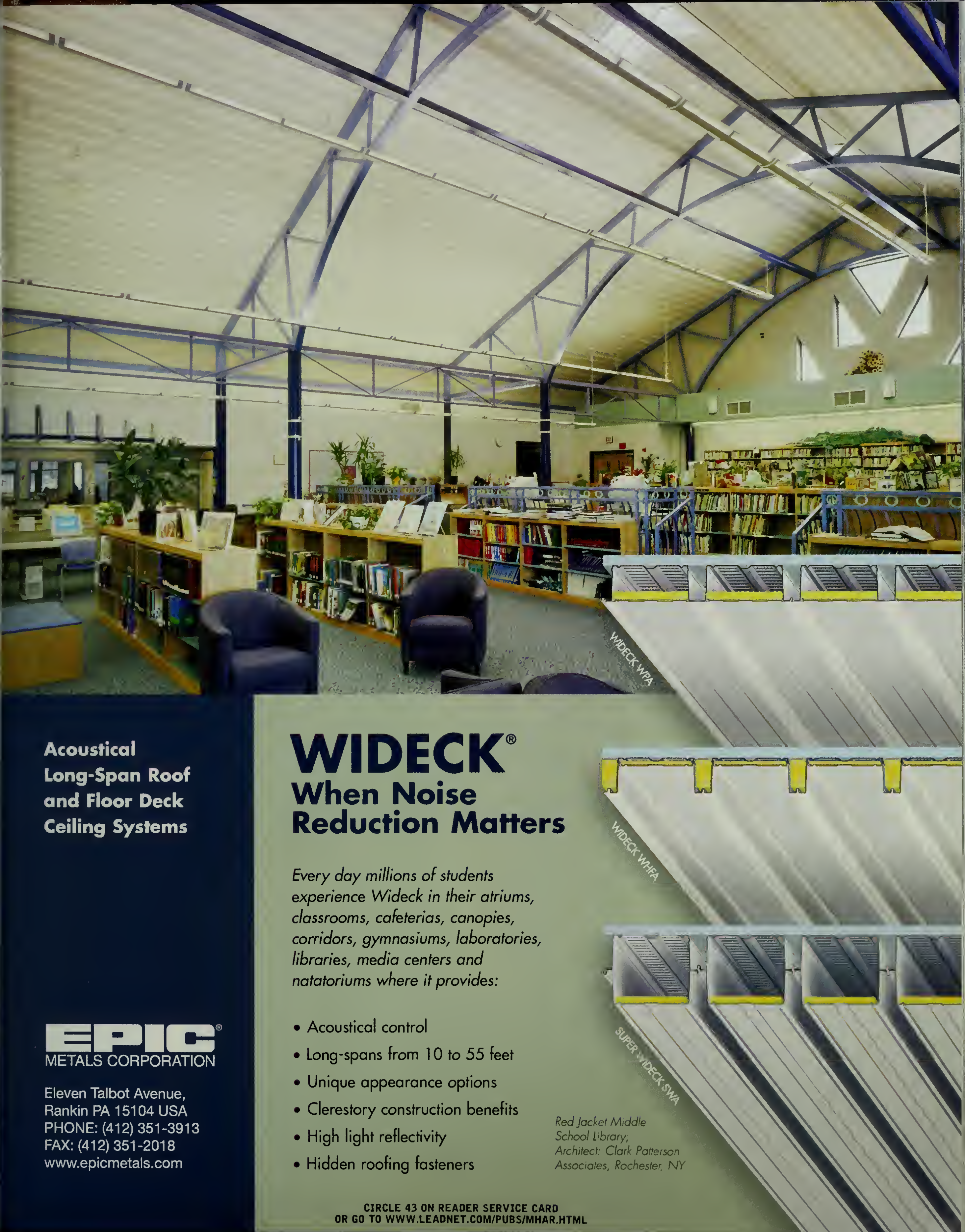

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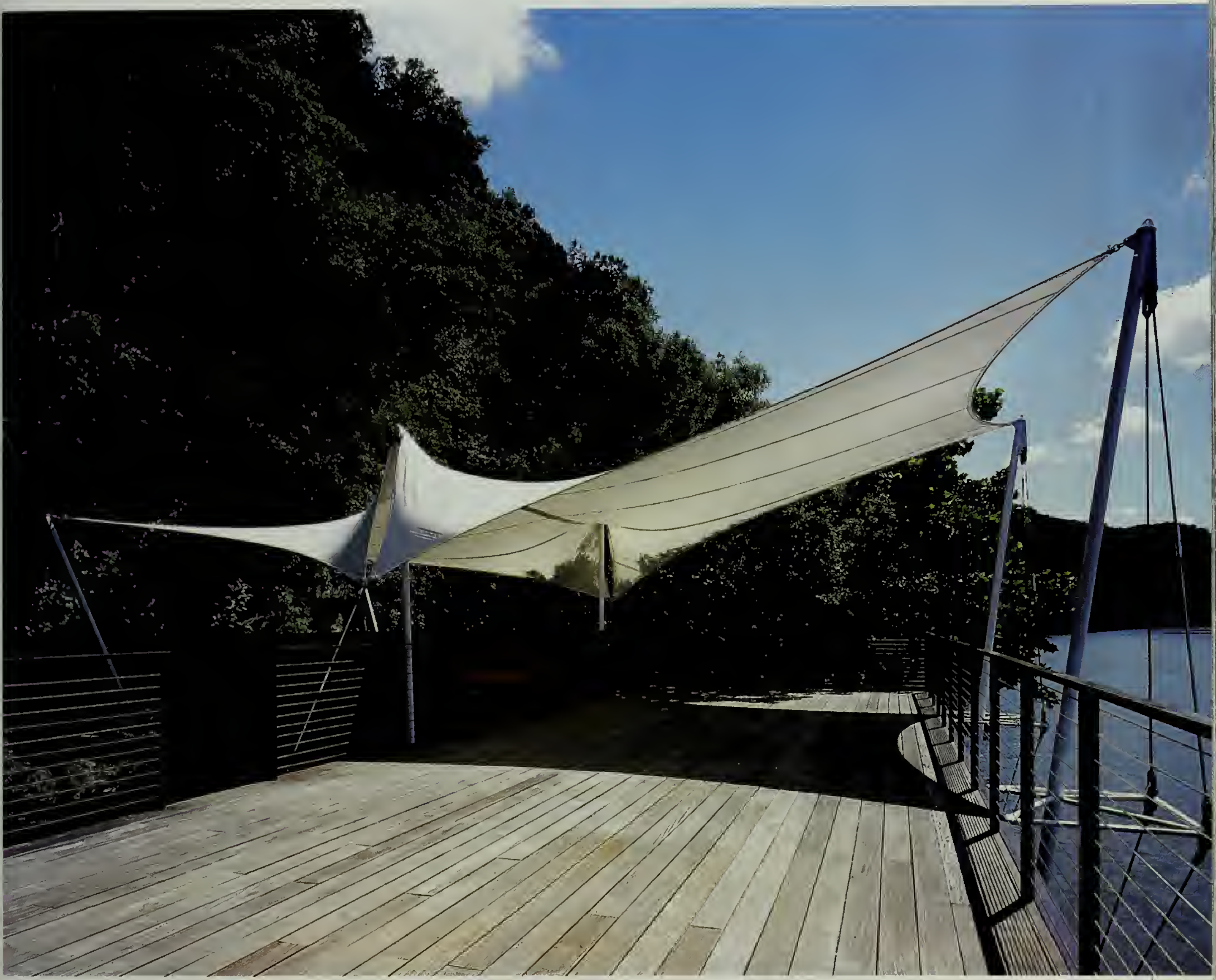

By Ingrid Whitehead

A boat dock on the banks of a Texas watering hole

In Austin, Texas, it's been said that the only body of water missing is an ocean. With numerous lakes and watering holes to give an overheated cowboy a cooling dose of H_2O, Austin is the Lone Star State's oasis. One family lucky enough to live lakeside wanted to maximize their use of Lake Austin by adding two boat slips, storage space for water skis and floaters, and a place where they could entertain friends. They hired Austin firm Miró Rivera Architects for the job. " 'Surprise us' was what the client said," marvels Rosa Rivera. The results surprised even the architects, as the project won numerous awards.

Located at the bottom of a 300-foot bluff on Lake Austin, the boat dock is connected to the house by a tram. The project comprises a box, a screen, and a canopy, tucked into a natural recess in the bluff, with the boat slips parallel to the shore. The box has a structural frame of steel I-beams with tube columns that contain the two slips and closet. The screen consists of a lattice of steel tubes spaced 1.5 inches apart. The canopy's white stretched fabric and mast give the structure the appearance of floating, much like the sailboats that inspired its design. ■

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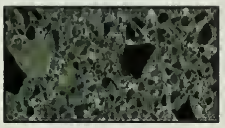
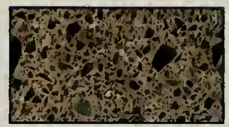
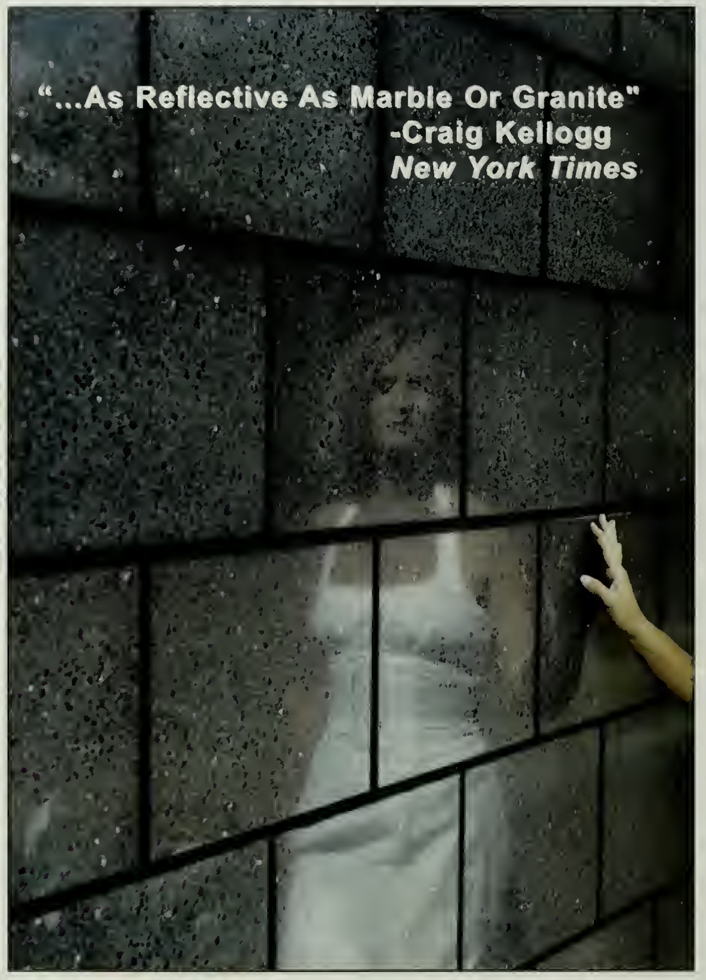
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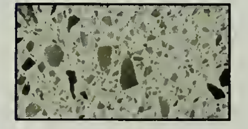
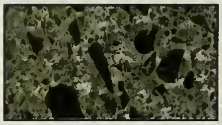
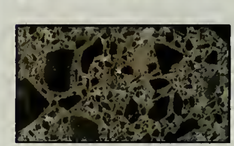
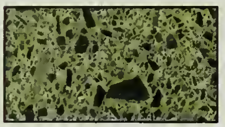
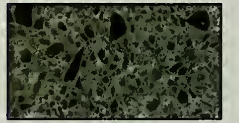
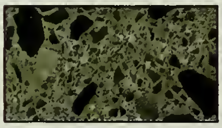
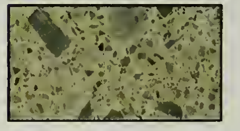
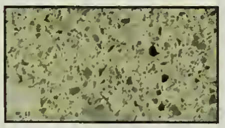
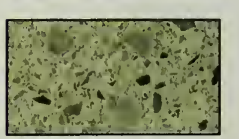
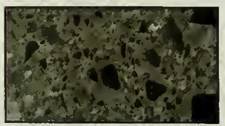
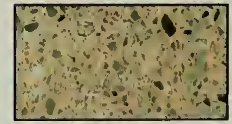
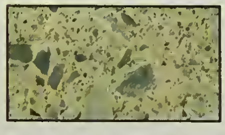
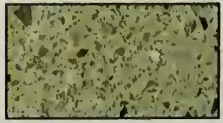

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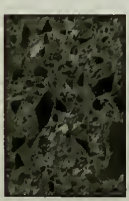

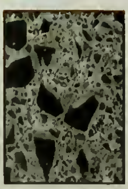

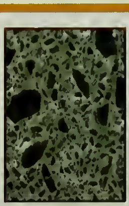

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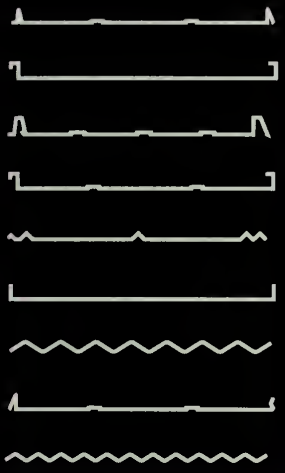

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China

Moving heaven and earth, and doing it faster than you thought possible

By Clifford A. Pearson

Cars are replacing bicycles on major streets in Shanghai (above right), as skyscrapers rise all over town. The city, which has a population of about 20 million, now has more than 2,800 buildings taller than 18 stories and another 2,000 being planned.

In scale and pace, the building boom currently sweeping over China has no precedent in human history. From the Three Gorges Dam in Hubei Province (price tag: $24.65 billion) to the 1,625-foot-tall World Financial Center under construction in Shanghai (price tag: $825 million), the physical and financial dimensions of what's going up boggles the mind. China is spending about $375 billion each year on construction, nearly 16 percent of its gross domestic product. In the process, it is using 54.7 percent of the world's production of concrete, 36.1 percent of the world's steel, and 30.4 percent of the world's coal. Funded by an ocean of foreign investments and encouraged by local and national governments intent on shaping a new future, building activity is racing forward. The spiky new skylines of Shanghai and Beijing signal a historic transformation affecting the country's social, political, cultural, and economic spheres. But buildings aren't the only things going skyward; in October 2003, China sent its first man into space. What had been a closed, mostly rural country with a malfunctioning, centrally controlled economy just 25 years ago has emerged as one of the world's fastest-growing, most dynamic nations.

With lofty ambitions come down-to-earth consequences. During the first two decades of the 21st century, 200 million people will migrate from rural China to its cities, states the *United Nations World Population Prospects* of 2002. This monumental shift in population will transform the nation's urban areas, burdening physical and social infrastructures but also fueling an array of building and economic opportunities. Finding jobs for all the rural workers moving to the cities, as well as the people being laid off as giant state-operated enterprises are privatized, will be one of the great tests of the Chinese experiment. While some economists say China cannot continue growing at its current pace (an 11 percent to 13 percent jump in GDP in the second half of last year), others warn that any slowdown would imperil the country's efforts to find jobs for the millions of people looking for work.

For architects, whether foreign or Chinese, most of the action is happening in the cities. As Beijing, Shanghai, Tianjin, Wuhan, Chongqing, Guangzhou, and Shenzhen balloon in size, architects and planners must balance a host of competing demands—for massive amounts of new buildings, modern infrastructure, improved environmental design, and historic preservation. Change one element and you affect all of the others. Build new highways and upgrade city roads, as has been done in

Note: The Chinese usually place a person's family name before the given name, but we have followed Western custom in this issue and put the family name at the end.

For additional coverage of architecture in China, go to **www.architecturalrecord.com.**

Shanghai, and you create the opportunity for municipal authorities to ban bicycles on major streets (as they did recently). Design a spectacular new high-rise and a finely knit neighborhood of old courtyard houses may be razed (as is happening in Beijing at an alarming rate).

During the past few years, a chorus of observers has predicted dire consequences from China's remarkably rapid changes. The economic bubble will soon burst. Construction will bring environmental degradation. Rapid development imperils the rich social and historic fabric of city neighborhoods. The drive to make a quick profit allows little room for architectural quality. Certainly, all of these dangers are real. But recently, some of the experts who might be expected to sound the alarms are expressing a new sense of optimism.

William McDonough, FAIA, who has made green design an essential element in all of his work, speaks excitedly about China. In 1999, he helped establish the China-U.S. Center for Sustainable Development, whose cochair is Deng Nan, China's vice minister of science and technology and the daughter of Deng Xiaoping, the country's paramount leader from 1978 until his death in 1997. "The Chinese are practical people and they understand that sustainable development is the way to grow," says McDonough. He and his Chinese organization are currently working on four urban design projects, including a sustainable village in Liaoning Province northwest of North Korea, a pedestrian- and transit-oriented new town near Wenling south of Shanghai, and a mixed-use, high-density district in the northeast part of Beijing. McDonough also sees China as an essential element in developing economical solar-energy cells for the entire world. "China is the world's lowest-cost producer," says McDonough, "so once you get the Chinese working on solar cells, you can make solar energy cheaper than coal."

Anyone who has visited China recently after being away for even just a few years notices the large pieces of urban fabric unraveling in major cities. Anthony M. Tung, an architect and former member of New York City's Landmarks Preservation Commission, investigated the situation in Beijing while working on his book *Preserving the World's Great Cities* (Clarkson Potter, 2001). When the Communists took power in China in 1949, imperial Beijing—whose plan dates back thousands of years and most of whose extant buildings and fortified city walls survived from the 16th century—remained largely intact. During the following three decades, however, Soviet-educated planners tore down almost all of the city's imposing walls, moats, and entry portals, while building highways and erecting factories in residential areas.

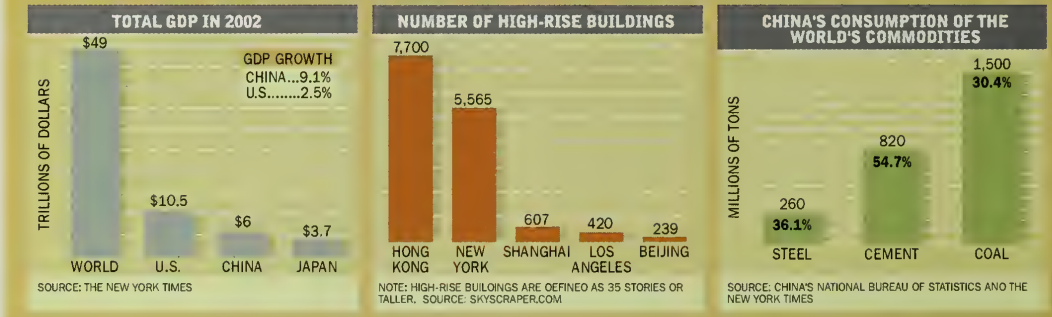
Today, many of the factories remain in operation, spewing pollution and contributing to acid rain that is eroding the magnificent stone carvings of the Forbidden City. But the Beijing authorities gave Soviet planning strategies the boot and adopted laws in the early 1980s that established 187 developmental control zones around important historic monuments. In theory, these designations limit the height and scale of new developments so they do not impinge on the character of historic landmarks. In practice, enforcement of these control zones has been lax.

While alarmed by the pace of change in Beijing, Tung believes that the regulatory system needed to protect the city's historic fabric is in place. The most important landmarks, such as the Forbidden City and the Temple of Heaven—which account for about 10 percent of imperial Beijing—have long been protected. "If development in the control zones were properly limited, the city could protect another 20 percent" of historic Beijing, explains Tung. When asked what are the chances of that happening, Tung expresses cautious optimism. Because the Communist government owns most of the city's land, it can control development in a way that is impossible in most other countries. Foreign pressure, especially when linked to the 2008 Olympics, can push the Chinese to enforce the developmental control-zone regulations, he says.

Other strategies to relieve developmental pressures in historic Beijing have been proposed by people involved with the Harvard Design School's Project on the City, the studio taught by Rem Koolhaas and others. After examining hypergrowth in the Pearl River Delta (Hong Kong-Shenzhen-Guangzhou) in the book *Great Leap Forward* (Taschen, 2001), the studio turned its attention to Beijing this past fall. Participants in the studio recommended "land-banking" certain districts, which would restrict development for a designated period, giving residents and planners a key resource in short supply: time to carefully consider what gets built, says Jeffrey Inaba, a principal of AMO who also teaches at Harvard and SCI-Arc. The studio also developed a scheme to build a "massive green belt" outside of Beijing, which would be a megastructure incorporating stacked highways and green, mixed-use buildings.

Although the quality of buildings going up can still be very low, Benjamin Wood, AIA, a partner of Wood + Zapata, says the Chinese have made huge progress since he started working in China in 1998. "In the past, even when Norman Foster did a building, it would look cheap because they used local products," says Wood. "But now Pilkington has a factory in China and you can get top-quality curtain wall and glass." He also marvels at the rapidly improving skills of Chinese architects. "Some of the younger architects worked for world-class architects abroad. Now they've set up their own firms back home and they're starting to do great architecture." Behind all the changes, Wood sees a remarkable, driving force. "They're creating a modern Chinese culture and they're doing it in real time." Westerners accustomed to incremental change need to switch gears to understand what's happening in China. Blink for a moment and you're liable to miss something important. ■

China's booming construction market: A sampling of current projects


TOTAL GDP IN 2002

NUMBER OF HIGH-RISE BUILDINGS

CHINA'S CONSUMPTION OF THE WORLD'S COMMODITIES

SOURCE: THE NEW YORK TIMES

NOTE: HIGH-RISE BUILDINGS ARE DEFINED AS 35 STORIES OR TALLER. SOURCE: SKYSCRAPER.COM

SOURCE: CHINA'S NATIONAL BUREAU OF STATISTICS AND THE NEW YORK TIMES

The Pearl of the Orient tower (opposite, top) has become a symbol of the hypergrowth in Shanghai's Pudong district. All over the country, building cranes and giant billboards announce further massive change (opposite, bottom left and right).

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FUTURE PRESENT

A new generation of Chinese architects is changing the rules of the game

By Nancy Levinson

Since reforms in 1995 allowing individual architects, not just design institutes, to be registered, a growing number of Chinese designers have set up their own boutique firms and are now producing innovative work. Four are shown on the opposite page.

When the Chinese architect Qingyun Ma graduated from Tsinghua University in 1988, his options for practice in his homeland were limited. Had he remained in Beijing, he would most likely have found himself working in one of the state-run design institutes—that is, in one of the architecture and engineering bureaucracies that for decades produced all significant construction in the People's Republic. As it happened, Ma went abroad for a few years, to study and work in the United States. The years would prove eventful, and when the architect went back to China in the mid-1990s, he returned not to occupy a drafting desk at a big institute but instead to establish MADA s.p.a.m., a Shanghai-based design studio of his very own [RECORD, December 2003, page 80]. That Ma chose to open his own firm certainly reflects the influence of his experience in America, but it owes even more to a profound and ongoing transformation in Chinese architecture: the emergence of private practice.

The rise of private architectural practice in China is best understood within the context of the momentous changes that have been transforming the country for the past quarter century, ever since Deng Xiaoping declared that "to get rich is glorious" and set in ever-accelerating motion its transition from a centrally planned to a "socialist market" economy. Indeed, by the early 1990s, as China's economy began to surge—as its cities became clogged with construction cranes and its urban skylines crowded with office towers designed by foreign firms—it was obvious that the state-sector design institutes had neither the artistic capacity nor administrative agility to meet the new demands or to compete in a globalizing market. "The main reason for the emergence of the private design firm is the vast and previously unimaginable building boom," says Ma. "The design institutes were not prepared to handle that." In particular, he says, they were ill equipped to respond to "the enormous number of small and modest projects" that required attention. Usually very large, with staffs of hundreds and even thousands, "the institutes were based on a Soviet model," says Chen Zhao, a professor of architecture at Nanjing University. "Architects had little choice as to which institute they worked for, and some of the institutes were specialized—one might do airports, for instance, another factories." This was not, he emphasizes, "a system that encouraged operational flexibility or individual creativity."

Nancy Levinson is the former managing editor of the Harvard Design Magazine *and writes about architecture and design for many publications.*

Spurred by the galloping economy, the government initiated a review of the system. According to Qinnan Zhang, who played a central role in the endeavor, first as director of design for the Ministry of Construction and then as secretary general of the Architectural Society of China, the study was detailed and lengthy. "We researched the educational and professional systems in the U.S., Europe, and Japan, and compared them with our own," Zhang says, noting that their goals were to make Chinese practice internally dynamic and internationally competitive. The painstaking review produced the reforms that have enabled the rise of the private office, the most crucial of which was the Registered Architects Ordinance, passed in 1995, which allows individual architects to be officially qualified to practice. Before then, only the design institutes, as organizations, were eligible for legal professional status. The effects of the ordinance have been dramatic, according to Zhang. Not only has it inspired parallel reforms in design education, including the establishment of a university accreditation system, but it has also, he says, "promoted a variety of forms of practice, prompted a recognition of the rights and responsibilities of individual architects, and encouraged an international outlook."

Various forms of practice, recognition of individual talent, an international outlook: What the new rules have brought about in China is, in fact, a system that increasingly resembles the pluralized, privatized professional cultures of the United States and Europe, Australia, and Japan. The era of the job-for-life—what the Chinese call the "iron rice bowl"—in the Communist collective is clearly past; architects can now choose from a range of professional options. The design institutes continue to be a dominant presence, to be sure, but these organizations are themselves undergoing radical shifts. While they retain official status, they are also moving toward greater operational independence. "There is a trend toward the institutes becoming privatized," says Wei Shi, a doctoral student at Tongji University in Shanghai who is studying the new private sector. "For example, some have been bought out by their chief designers, at which point they function much like large, full-service firms in the U.S., competing for commissions and dividing up the profits."

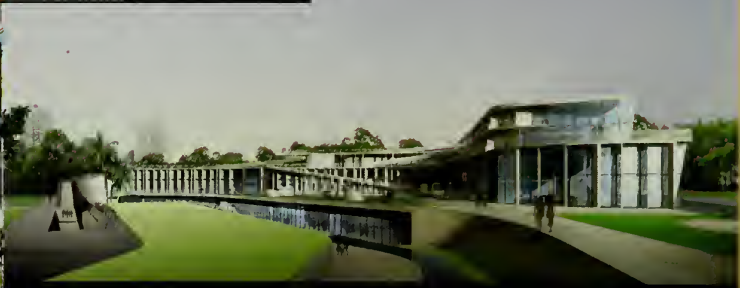
If the institutes are analogous to big American offices, then the private firms, says Li Hu, who works for Steven Holl Architects in New York City and has started his own firm, OPEN Architecture Studio, "are analo-

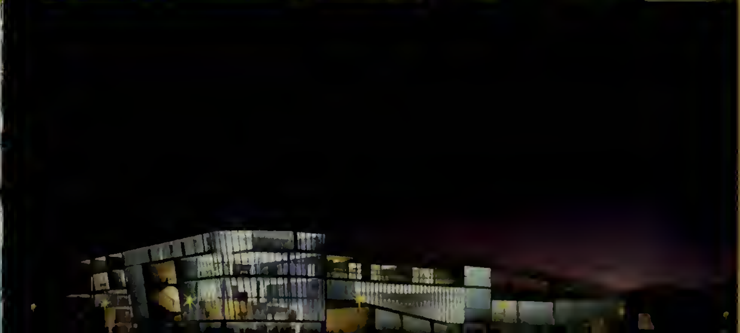
Project: *Ningbo Cultural Center, Ningbo*
Architect: *MADA s.p.a.m., Qingyun Ma (right)*

Project: *West Lake Southern Line Pavilion, Hangzhou*
Architect: *Original Design Studio, Zi Zhang (left in photo), Ming Zhang (right in photo)*

Project: *Jianchuan Museum Town, Anren, Sichuan*
Architects: *Atelier Feichang Jianzhu/Yung Ho Chang (right) and Jiakun Architects*

Project: *Shenzhen No. 2 Senior Activity Center, Shenzhen*
Architect: *OPEN Architecture Studio, Li Hu (left)*





Young architects such as Xiaohua Fei and Doreen Heng Liu (opposite) are part of an emerging group of design talent that is trying to develop a contemporary Chinese architecture that is Modern yet rooted in Chinese culture.

gous to design-oriented practices in the West." Usually employing 15 to 30 designers, private firms are proliferating, especially in big cities; citing figures provided by the Ministry of Construction, Shi estimates that the number of private offices in Shanghai increased by more than 10 percent from 1999 to 2001. And these firms operate in diverse ways. Some are licensed, with registered principals, but many are not; an unregistered architect can practice easily by means of strategic joint ventures with a design institute, or more simply by retaining a licensed firm to stamp drawings. Chinese practice thus accommodates a range of possibilities, from the big bureaucracies to the fledgling studios. In this way, it fits into a larger social pattern, says Stanislaus Fung, a professor of architecture at the University of New South Wales in Sydney. "To understand the diversity of practice types," says Fung, "it is useful to know the Chinese concepts *guanfang* and *minjian*, which translate loosely as 'official' and 'unofficial' or 'of the authorities' and 'of the people.' They are not quite opposite, but rather overlapping, zones. People move back and forth between them, and this movement makes many things possible."

Whatever their official status, many of the new private firms share what Wenjun Zhi, editor of *Time + Architecture*—a progressive bimonthly published by Tongji University—describes as an "ethos of experimentation." Like Zhang, Zhi views privatization as a critical development in the ongoing effort to raise the quality of Chinese architecture. "Studios encourage a personal approach, the kind of commitment that inspires an architect to strive to do better work, an approach that was rare in the large collective." The March/April 2003 *Time + Architecture*, which focused on the rise of private practices in Shanghai, offers a well-illustrated tour of the work of some new firms—much of which fits neatly into the contemporary neo-Modernist idiom. High points include a kindergarten project in Dalian, by Standard Architecture; a courtyard landscape for the North China Airline Office Building, by Atelier 100s+1; a woodland pavilion in Hangzhou, by Original Design Studio; a translucent-walled public toilet in a Shenzhen park, by X-Urban; and the sales office of a company called American Rock, by United Design Studio.

As their studio names suggest, these Chinese architects are familiar with the sort of Western practices often labeled "alternative" or "critical." But unlike their counterparts in the East Village or East London, where such practices often generate little but paper projects, private practitioners in China are benefiting from an abundance of opportunities to build. Yet this abundance poses its own peculiar problems. "While a young architect in New York spends a lot of time making contacts that might lead to good projects," say Ma, "we have to be careful to avoid meetings that might lead to bad projects." Or, as Yung Ho Chang, a founder of the Beijing firm Atelier Feichang Jianzhu, puts it, "One of the biggest challenges is time. There is so much emphasis now on speed, and in some projects design and construction are happening simultaneously." Chang is now collaborating with Jiakun Liu, who heads Jiakun Architects in Chengdu, on a master plan for Jianchuan Museum Town, a grouping of museums for a private client who has collected artifacts from the Cultural Revolution and other important eras in Chinese history. "For the master plan, which is about 20 million square feet," says Chang, "we were given just six weeks." And in addition to dizzyingly quick schedules, architects must contend with construction processes in which they typically play little part. "It's very easy to get a commission," say Chang. "It's much harder to see that it gets built the way you want. Once a building is under construction, the construction manager answers to the client, not the architect." Doreen Heng Liu, a recent Berkeley graduate who practices with the Fok Foundation in Nansha, describes the difficulties her firm confronted during the construction of the Nansha Science Museum. "We developed the concept and design, and the client hired a design institute to do the construction drawings," she said. "But they could not do sophisticated details. And when I visited the construction site to inspect the job, the workers were upset—it's not yet the custom in China."

Whatever the challenges, for a growing number of Chinese architects, private practice permits valuable freedoms: Like their counterparts in the West, they can pursue the twin goals of profit and prestige. Profit exerts, perhaps, the stronger pull. "For many Chinese," says Shi, "private practice is largely a way to achieve the bourgeois lifestyle that's now possible here—a way to get that brand-new Audi." But the chance to develop as an architect, to refine an artistic vision, is also a powerful spur to some who have set up studios. And like the new Audi and the lifestyle it signals, the prospect of personal recognition is something the Chinese haven't yet learned to take for granted. "Until recently, buildings were not identified with their architects but with their programs or clients," says Zhao. "Most Chinese would have no idea who designed the buildings of Tiananmen Square."

Were Dongri Zhao and Bo Zhang, the chief designers of the Great Hall of the People, practicing today, it's unlikely they would be laboring in anonymity. The rise of private practices has enhanced the cultural prestige of architects, whose new visibility is evident in various ways. The work of Chinese architects has been exhibited in galleries both in China and abroad (most recently in last year's Pompidou Center show, *What About China?*). It is featured increasingly in consumer as well as professional magazines. And it is even starting to attain that peak of media culture—brand recognition. Western architects have long had brand-name appeal in China, but these days, progressive clients are increasingly likely to hire local talent to lend glamour to a project. When the developers Shiyi Pan and Xin Zhang, of the Beijing-based SOHO China real estate company, sought celebrity architects to design the villas of the Commune by the Great Wall—an upscale development near Beijing, whose Web site urges potential buyers to "collect the art of architecture"—they readily filled their roster with Asian architects. The value of a prestigious name is even inspiring design institutes to set up personalized studios within their organizations, partly to reward star designers and partly to attract clients; for instance, Kai Cui, one of China's most prominent architects, and one of the Great Wall Communards, runs his own studio at the China Architecture Design and Research Group in Beijing.

Privatization is still a recent phenomenon in Chinese practice; its already substantial effects are undoubtedly the early stages of a fundamental transformation of the country's architecture profession. And for some designers, one of the critical aspects of this transformation will be an exploration of the very nature of Chinese architecture. Owing to its long isolation and tumultuous 20th-century history, "China did not participate in the modern era," notes Nanjing University's Zhao. "Inevitably, we have had to import modernity, in both theory and practice, from the West." For some Chinese architects, then, a pressing question emerges: What will be the characteristics of an architecture both contemporary and Chinese? "This is a crucial matter," says Chang. "The economy is giving us an extraordinary chance to make buildings. But this chance has made us realize that we have an even bigger opportunity, which is to participate in defining contemporary Chinese culture." ■

Project: *Public Toilet, Shenzhen*
Architect: *X-Urban Consultants, Xiaohua Fei (right)*

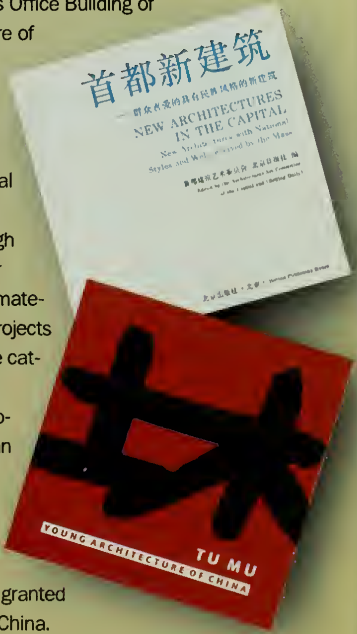
Project: *Nansha Science Museum, Nansha*
Architect: *Fok Foundation Design Division, Doreen Heng Liu (right)*

From institute to studio

To understand how significantly Chinese architectural practices have changed in recent years, it would be useful to have on your desk two very different books. *New Architectures in the Capital*, a large-format compendium put out by the Beijing Publishing House in 1995, features 50 projects dating from the mid-1950s to the early 1990s. Selected by the Architectural Art Committee of the Capital, all were produced by one or another of the state-run design institutes. And although they vary considerably in program and style, they offer a revealing view of Chinese building production from the revolutionary era of Mao Zedong to the reformist generation of Deng Xiaoping.

There are the massive buildings of Tiananmen Square, including the Great Hall of the People and the Chinese History Museum, both opened in 1959 to commemorate the 10th anniversary of Mao's taking power, and rendered in a lean, Stalinist-influenced Neoclassicism. There are the tourist hotels, such as the 1989 Palace Hotel and the 1987 Liu Ting Hotel, both in Beijing, which mix traditional Chinese elements with Western construction, an approach that resulted in the decidedly unsatisfactory "big roof" style—Modern buildings with pagoda tops. And there are newer complexes, such as the Beijing Customs Office Building of 1990, and the Tanqiao Department Store of 1991, tricked up in a kitschy commercial Postmodernism that would make John Portman blush.

In *Tu Mu: Young Architecture of China*, the reader will find no monumental government set pieces, no steel-framed towers with Ming dynasty motifs. Although "*tu mu*" is the historical Chinese term for architecture—it refers to the traditional materials of earth (*tu*) and wood (*mu*)—the projects in this slender paperback, which was the catalog for a 2001 exhibition at the Aedes Gallery in Berlin, are rigorously contemporary and amply justify the distinction of an exhibition in Europe. But just as notable as their quality is the professional framework of their production: The projects are the work of private design studios, a type of practice long taken for granted in the West but only recently possible in China.



There are spare and elegant domestic projects, such as the live-work studio created by Al Wei Wei, and the Y-shaped Split House, by Atelier Feichang Jianzhu (page 94), which is part of the Commune by the Great Wall, a neo-Modernist housing development near Beijing. There are sleek urban places such as the Ningbo Cultural Center (page 75), a competition-winning project by Qingyun Ma, principal of MADA s.p.a.m. And there are strikingly Minimalist institutional buildings, including the Luyeyuan Stone Sculpture Museum in Chengdu, by Jiakun Liu (page 86); a student dormitory in Nantong by the partnership Nianda Jianzhu; and the Wenzhang College Library, by Shu Wang, a serene white pavilion overlooking a lake made from a former clay quarry.

That only half a dozen years separates the publication of the two books can be viewed as one measure of how swiftly architectural practice is changing in China. And there seems little doubt that the changes will continue, and that their unfolding will be one of the most interesting and exciting architectural developments of the next decade. *N.L.*

Reflections on Chinese landscape design and

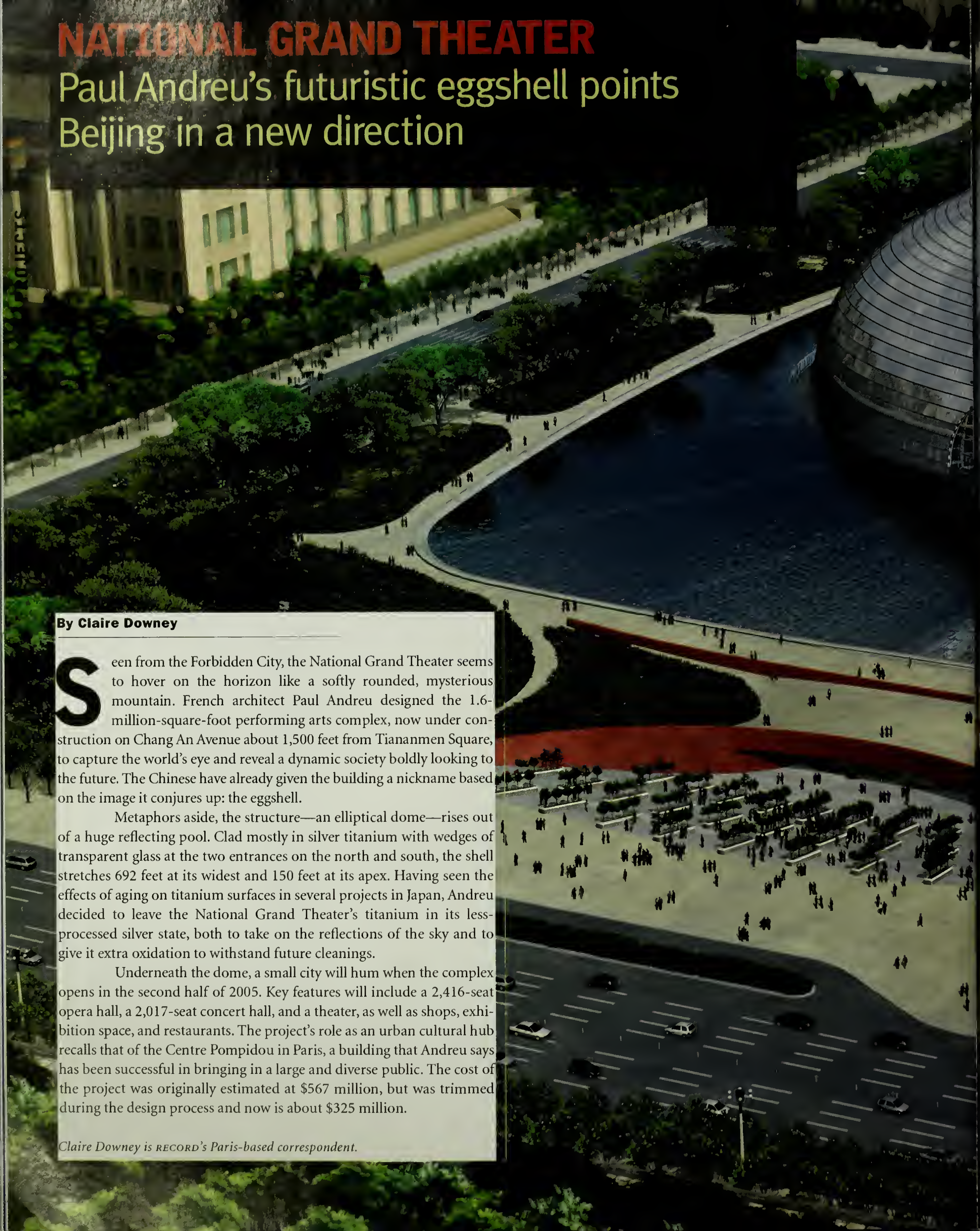
he enduring power of history and context

With the largest imperial garden in the world, the Summer Palace outside of Beijing expresses the Chinese love of manipulating nature. Manicured and teased, enhanced with man-made bodies of water and embellished with handcrafted structures, this landscape is anything but wild. European forces burned down the original 18th-century palace in 1860, but the Chinese rebuilt it within 35 years. Today, it remains a touchstone of Chinese design. *CAP*

Photography by
Andy Ryan

NATIONAL GRAND THEATER

Paul Andreu's futuristic eggshell points Beijing in a new direction



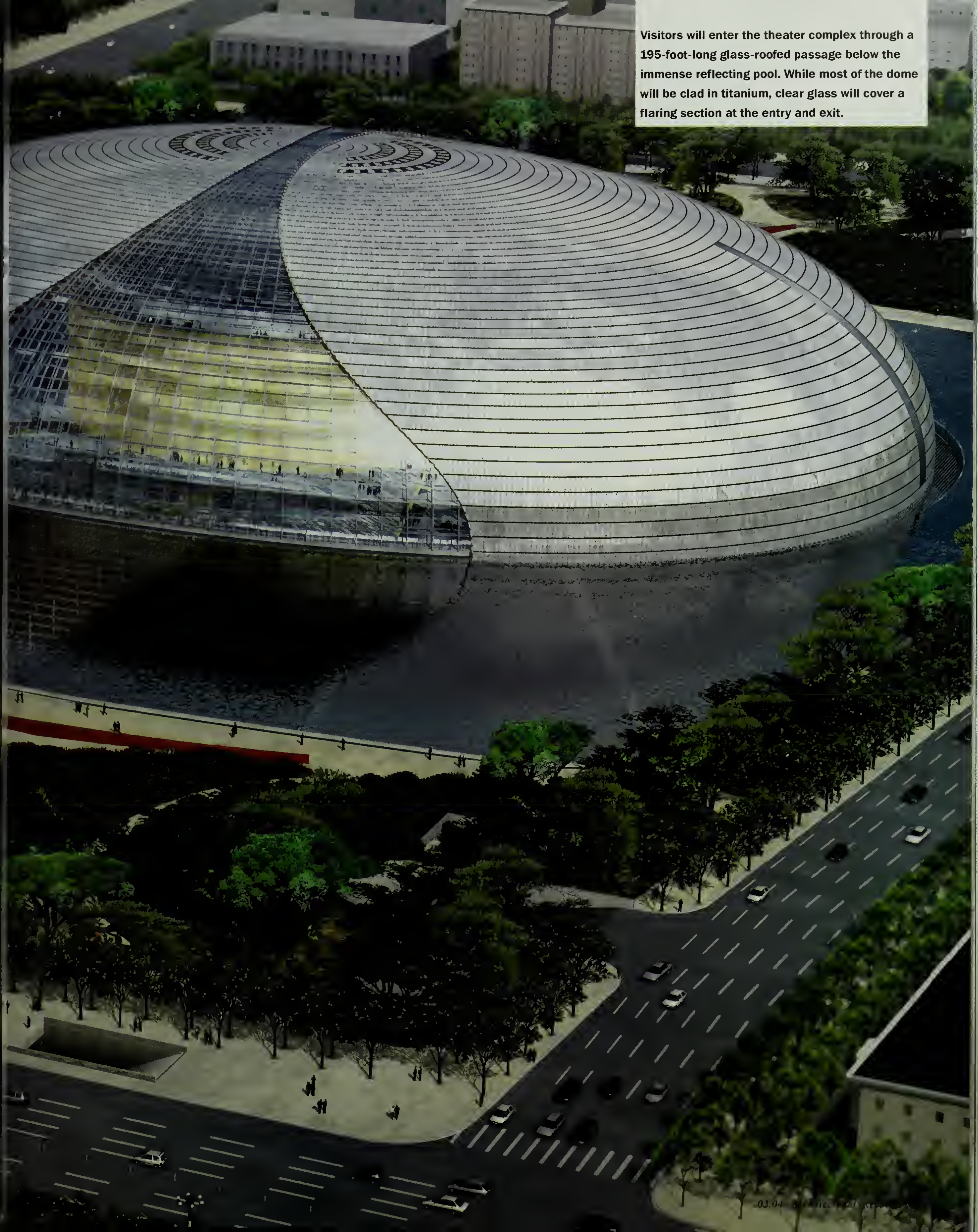
By Claire Downey

Seen from the Forbidden City, the National Grand Theater seems to hover on the horizon like a softly rounded, mysterious mountain. French architect Paul Andreu designed the 1.6-million-square-foot performing arts complex, now under construction on Chang An Avenue about 1,500 feet from Tiananmen Square, to capture the world's eye and reveal a dynamic society boldly looking to the future. The Chinese have already given the building a nickname based on the image it conjures up: the eggshell.

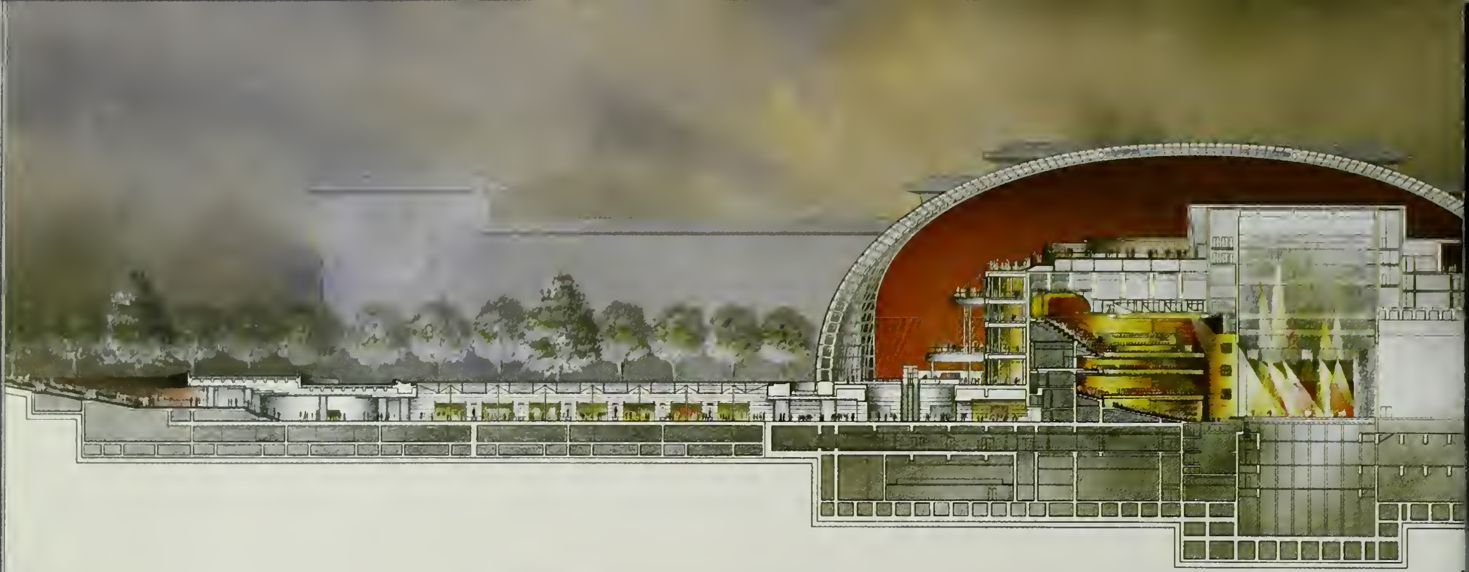
Metaphors aside, the structure—an elliptical dome—rises out of a huge reflecting pool. Clad mostly in silver titanium with wedges of transparent glass at the two entrances on the north and south, the shell stretches 692 feet at its widest and 150 feet at its apex. Having seen the effects of aging on titanium surfaces in several projects in Japan, Andreu decided to leave the National Grand Theater's titanium in its less-processed silver state, both to take on the reflections of the sky and to give it extra oxidation to withstand future cleanings.

Underneath the dome, a small city will hum when the complex opens in the second half of 2005. Key features will include a 2,416-seat opera hall, a 2,017-seat concert hall, and a theater, as well as shops, exhibition space, and restaurants. The project's role as an urban cultural hub recalls that of the Centre Pompidou in Paris, a building that Andreu says has been successful in bringing in a large and diverse public. The cost of the project was originally estimated at $567 million, but was trimmed during the design process and now is about $325 million.

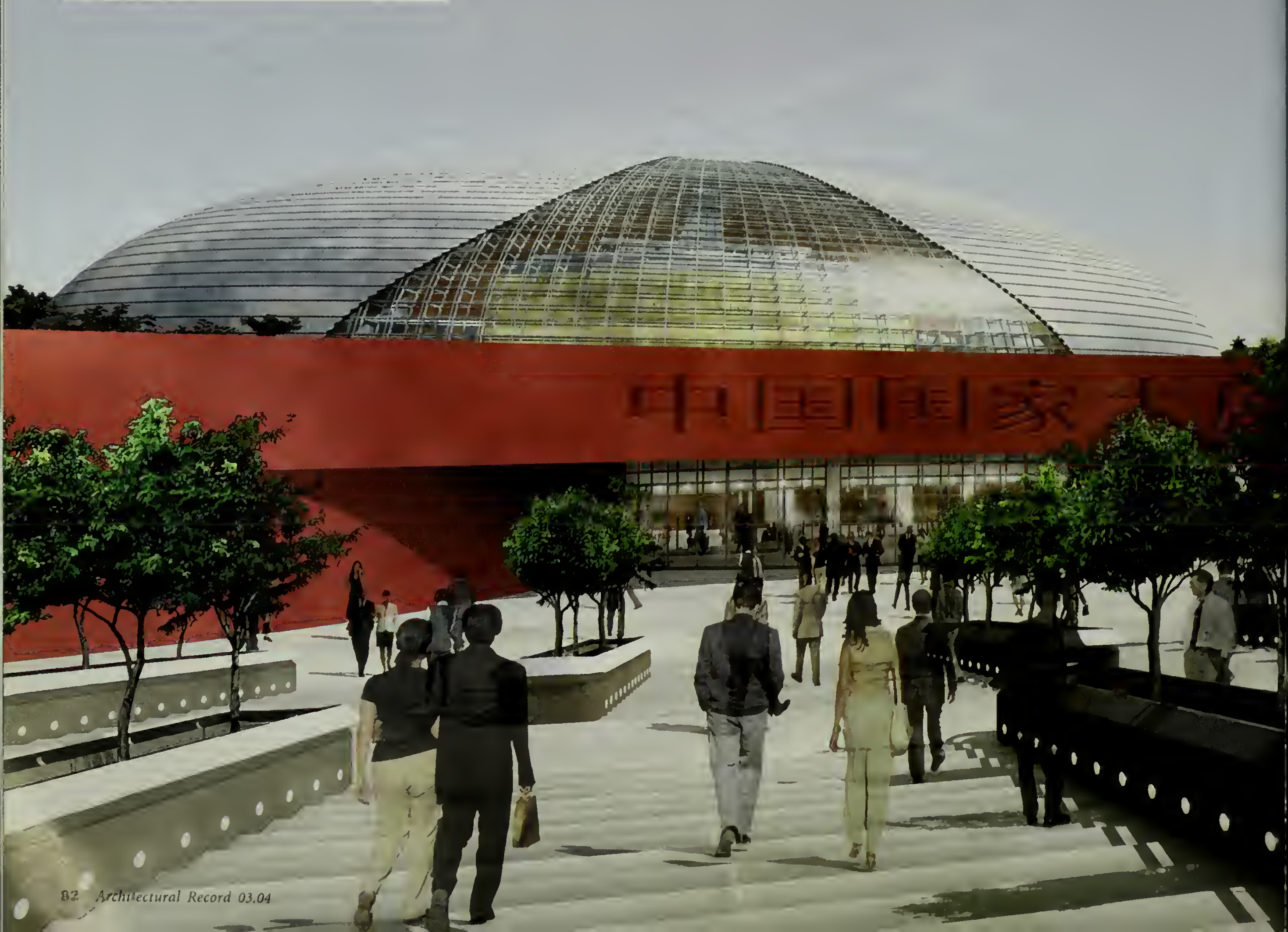
Claire Downey is RECORD*'s Paris-based correspondent.*

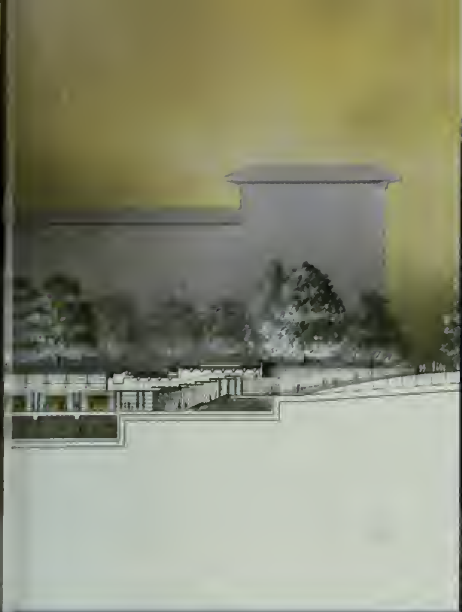


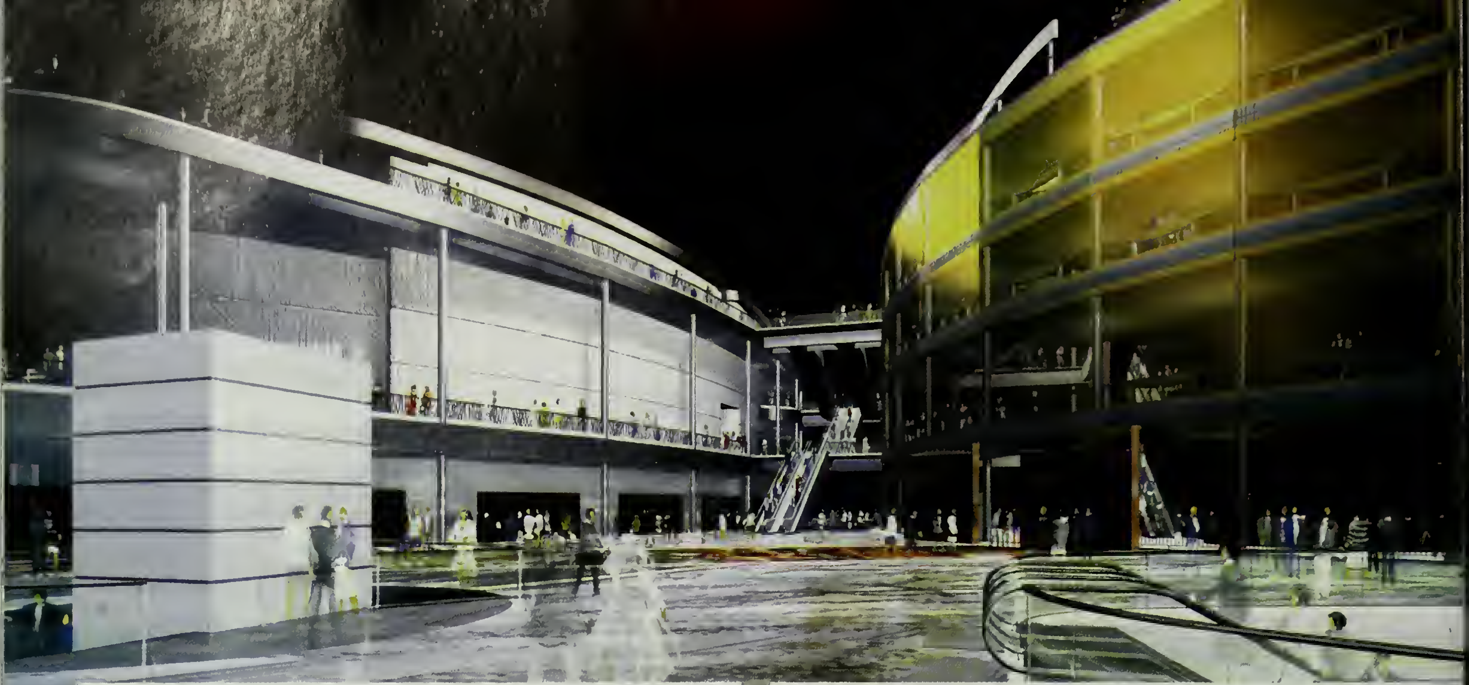
Visitors will enter the theater complex through a 195-foot-long glass-roofed passage below the immense reflecting pool. While most of the dome will be clad in titanium, clear glass will cover a flaring section at the entry and exit.



The building's curving form hovers above Tiananmen Square (opposite, top right), and its dramatic atrium is taking shape (opposite, bottom right). The main entry (below) will be from the north, the direction of the Forbidden City. A series of performing arts halls will sit under the dome (above).







The 2,415-seat opera hall (right in rendering above) will be wrapped in a translucent curtain of metal mesh, so figures moving behind it will be part of the show. Curves and metal mesh also predominate inside the hall (opposite, bottom). Visitors arrive in the grand atrium from below, by way of stairs and escalators (opposite, top).

As the director of architecture and engineering for Aéroports de Paris (ADP) until a year ago, when he started his own firm, Andreu gained a lot of experience handling crowds and learned to give people freedom to move as they please within a space, rather then trying to manipulate their every step. At ADP, he made his mark with dynamic projects such as Terminal 1 at Roissy-Charles de Gaulle, which moved travelers through a central atrium by way of crisscrossing glass tubes; the glass-roofed Exchange Module at Charles de Gaulle [RECORD, January 1996, page 76]; and the sleek design of the new Shanghai-Pudong Airport [RECORD, July 2000, page 162].

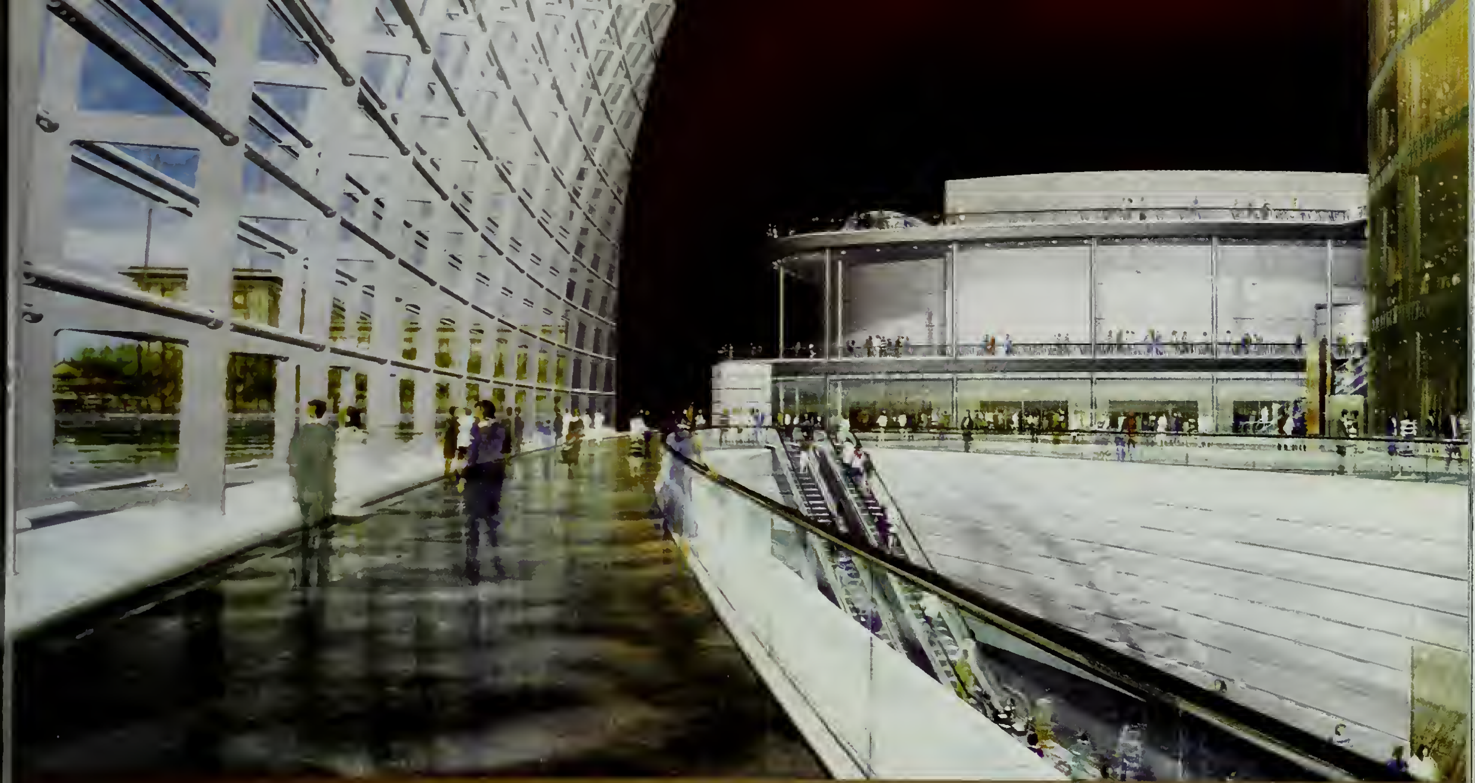
Andreu won the commission for the National Theater in 1999, after a competition that included invited architects and others, like him, who qualified for open entries. It was, in Andreu's words, "a very long process and at one point, I almost pulled out." During an 18-month period, the client rethought certain aspects, such as the project's siting, and Andreu made design changes. But his essential concepts remained constant: no bad facades, no back of house, and all parking and technical support below ground. In addition, he insisted that the opera hall—the most important piece of the project—be positioned in the center of the project, and the building be on axis with the Great Hall of the People next door. His futuristic design and foreign nationality, though, drew much criticism from established Chinese architects and even led to a short halt in the project in 2000.

As executed, Andreu's design creates a series of envelopes and layers of activity—even the pool will double as an ice rink in winter months. Visitors will enter from the north, through a 195-foot-long glass-roofed passage below the pool. In the grand atrium, each performance hall will stand out with a distinct form. The opera hall, for example, will be covered with a scrim of gold-toned metal mesh. Inside, the seats will fan out in a wide curve and the room will have no visible corners, which didn't please the acoustic consultant. To improve the acoustics, Andreu employed woven metal fabric to hold the curved lines, allowing sound to pass through to straight walls behind. The spaces between the mesh and the walls can be backlit with variable, colored lighting.

The smaller theater will have 1,040 seats, and silk-covered walls, and will be used for Peking operas, whose traditional form of performance requires close contact with the audience. In contrast, the columns of the rectangular, white concert hall will provide the listener with distant points on which to rest the eye. For all of these theaters, the storage, technical support, and even delivery areas will be underneath the main plaza level, so they do not interfere with activities above. The project's vertical layering will create features such as a terrace above the opera, from which visitors will be able to see over the Forbidden City and the government buildings surrounding Tiananmen Square.

The first of Beijing's "*grand projets*" leading up to the 2008 Olympics, the National Grand Theater has already blazed a new trail, which international architects are following. As Andreu explains, his building is "creating continuity and rupture, but without causing conflict." ■

Project: *National Grand Theater, Beijing*
Architects: *Paul Andreu Architecte and ADP—Paul Andreu, François Tamisier, Hervé Langlais, Alain Le Pajolec, Felipe Starling*
Engineer: *Setec*



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LUYEYUAN STONE SCULPTURE MUSEUM

Jiakun Liu creates a dramatic setting for art

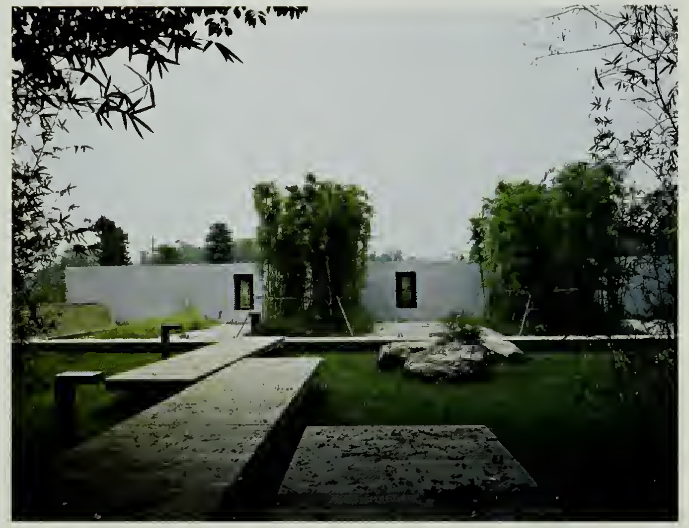
By Clifford A. Pearson

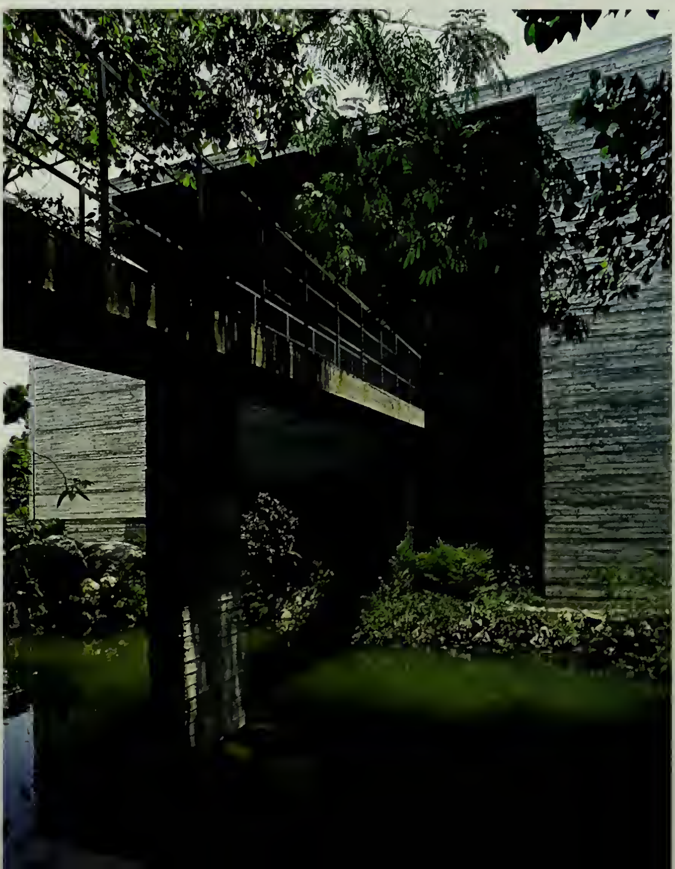
Architect Jiakun Liu designed the Luyeyuan Stone Sculpture Museum as a journey, one that uses both timeless and modern means to take us from the everyday world to someplace extraordinary. Like most trips today, this one begins in a parking lot. Getting out of their cars, visitors encounter trees that screen the parking lot from the museum and divide the flat, 1.5-acre property along the Fu River into several discrete areas, creating a sequence of spatial experiences.

The name of the location, Luyeyuan, comes from the Chinese word *luye*, which means a field with deer and refers to the places where the teachings of the Buddha, in his incarnation as Sakyamuni, extend. Appropriately, the architect laid out a meandering path for visitors to follow, with one branch taking them to a simple ancillary building with offices and storage and another leading past a rebuilt straw farmer's house now used as a lecture hall, through a glade of bamboo trees, and finally to a long concrete ramp spanning a small lotus pond. "Walking along the woods and then across them is an important factor in creating a mental sequence," says Liu. By moving visitors through the landscape, the architect alters their perspective and prepares them for the museum experience. As it extends over the pond, the ramp rises slowly, splitting a pair of willows, and ends at the recessed entry to the museum.

Contrasting simple, solid forms with various kinds of voids, Liu creates a dramatic setting for Buddhist stone sculptures from the Han Dynasty (206 B.C.–A.D. 220) to the Song Dynasty (960–1125). From the entry ramp, which pierces the concrete enclosure of the 9,700-square-foot museum at the second floor, visitors move through a double-height space and then to galleries. The second-story exhibition space wraps around a roof court, which has the added attraction of a covered landing, reached by an outdoor stair and offering views of the river and the surrounding area. On the first floor, the architect placed more galleries, as well as a small multifunction room and an office.

Using the same rough concrete walls on the interior as he does





The museum's architecture presents a sequence of solids and voids, starting with a concrete ramp penetrating a recessed entry (top right) and continuing with an interior bridge crossing a two-story-high atrium (opposite). Like the main building, an ancillary structure (bottom right) quietly connects with the landscape.

on the exterior, Liu gives the museum the feeling almost of "an underground palace," which visitors explore from top to bottom. He enhances the effect by inserting clear glass at the intersections between the building's masonry volumes, a strategy that protects the art from too much daylight and emphasizes contrasts between solid and transparent, earth and heaven.

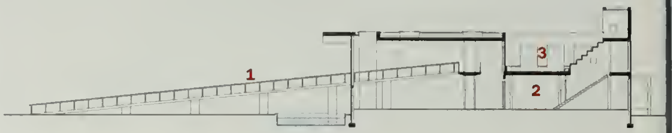
Because the art inside is stone carvings, Liu wanted the museum itself to tell "an architectural story of man-made stone." To this end, he designed the building with a concrete frame and double walls made of an unusual combination of poured concrete and shale brick. Owing to the limitations of the local building trades in this part of Sichuan Province, the architect used the inner brick wall as a template, ensuring a vertical pour for the wall. Shale bricks also provide formwork to create a grid pattern on the concrete, which gives the walls texture and hides imperfections in the exposed material.

While many Modern buildings in developing countries appear as alien objects with few connections to the local culture or building traditions, the Luyeyuan Stone Sculpture Museum seems firmly rooted in its place and society. Using a simple palette of rugged materials and a powerful vocabulary of Modern forms, the architect has created a dramatic structure that underscores the spiritual impact of the museum's art collection. In the process, he has shown how architecture can employ old skills and new approaches to deepen our appreciation of nature, art, context, and construction. ■

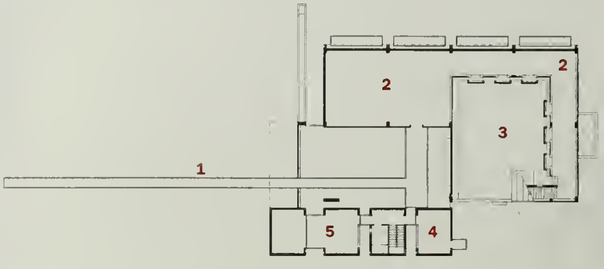
Project: *Luyeyuan Stone Sculpture Museum, Xinmin, Sichuan Province*
Client: *Zhong Ming*
Architects: *Jiakun Liu in collaboration with Wang Lun*
Structural engineer: *Zhao Rui Xiang*
Contractor: *GoArchit Art Engineering Company*

The architect carefully controlled the amount of daylight coming into the museum to provide dramatic lighting for the artwork and focused views of the surrounding area (opposite, bottom). He also used glass as a way of separating the heavy forms of the building's enclosure (right and opposite, top).

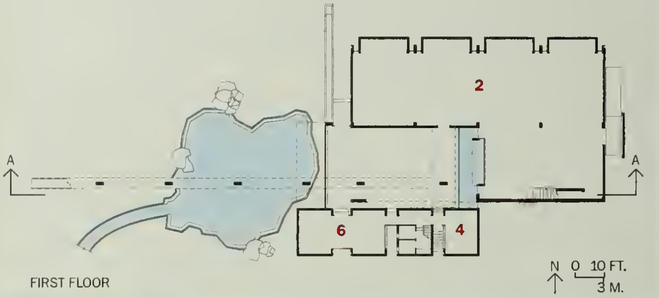
1. *Entry ramp*
2. *Exhibition*
3. *Roof court*
4. *Office*
5. *Curator*
6. *Multifunction*



SECTION A-A

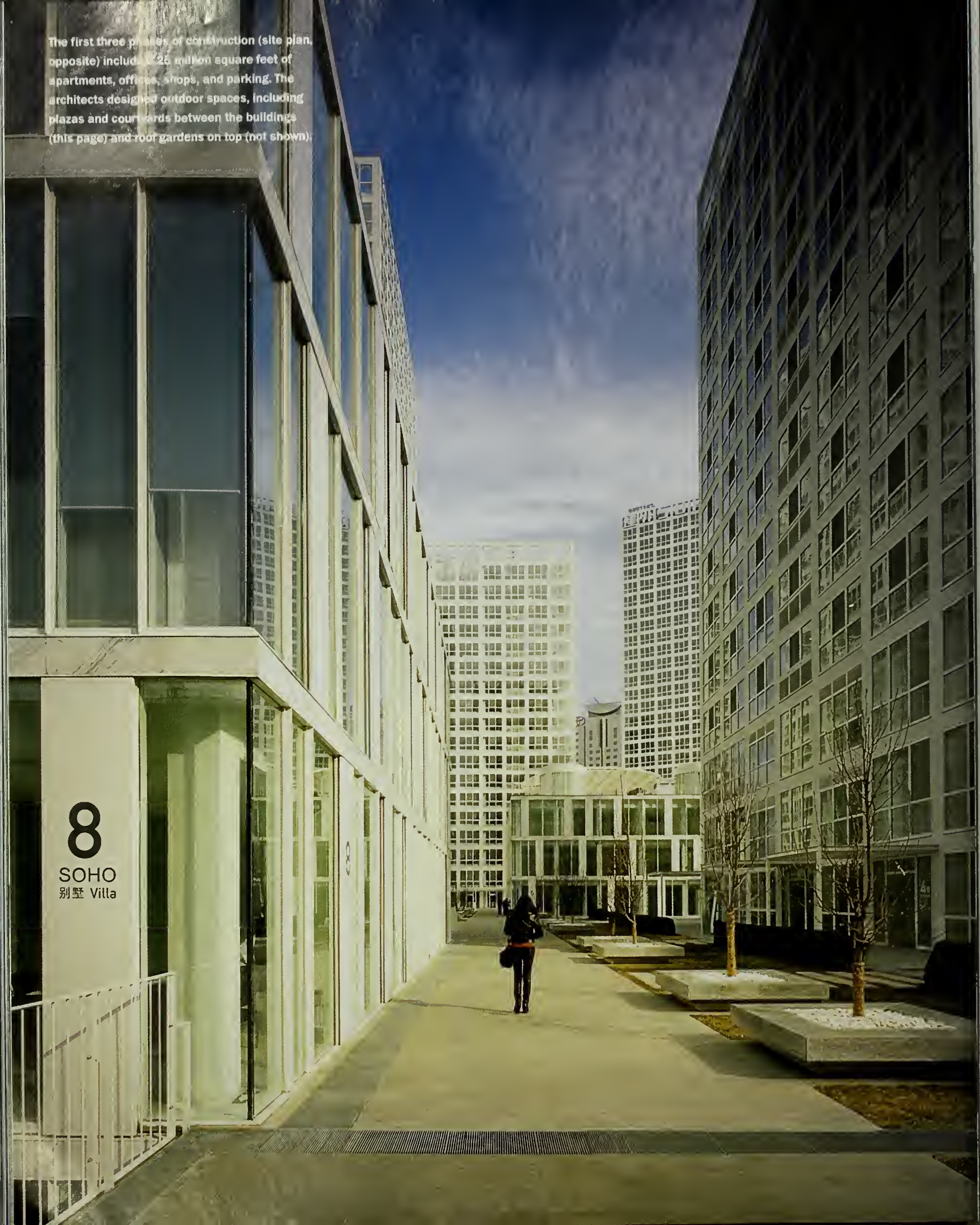


SECTION FLOOR



FIRST FLOOR

The first three phases of construction (site plan, opposite) includes [illegible]25 million square feet of apartments, offices, shops, and parking. The architects designed outdoor spaces, including plazas and courtyards between the buildings (this page) and roof gardens on top (not shown).



JIAN WAI SOHO

Riken Yamamoto creates a posh new address for Beijing

By Naomi R. Pollock, AIA

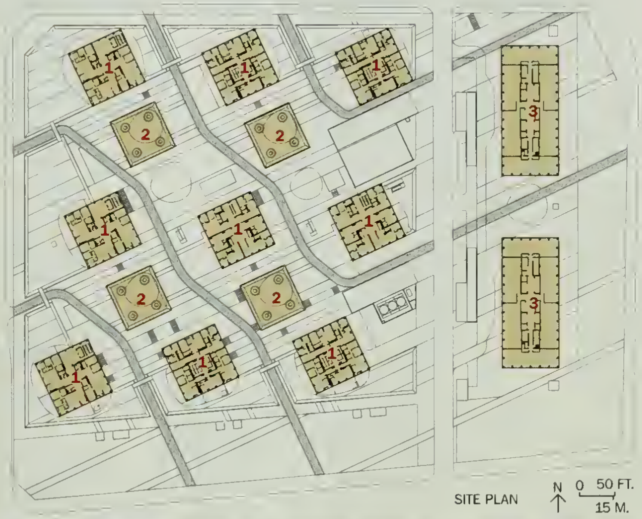
Tokyo architect Riken Yamamoto is no stranger to large-scale master plans. In Japan, Yamamoto is an expert at creating campuses from scratch and turning tired urban districts into cutting-edge housing blocks. But the 7.5-million-square-foot Beijing Jian Wai SOHO project is by far the biggest of the big projects to come across Yamamoto's drawing board to date. The result of an international design competition held in 2000, the first stage of the seven-phase development, which includes a mixture of apartment towers and low-scale commercial space, was completed in December 2003.

Located in Beijing's central business district about 1.5 miles east of Tiananmen Square, the new construction replaces a 1950s era steel factory with a forest of luxury apartment buildings marketed to wealthy Chinese and foreigners. "[W]e are trying to create a new landscape that has never before been seen in Beijing," explains Yamamoto. The developer, SOHO China, established itself as one of the country's most sophisticated with its Commune by the Great Wall, a collection of villas designed by innovative young architects from around Asia (see article on the Split House, page 94) and recently hired Zaha Hadid to master plan a large mixed-use project in Beijing.

Creating a new landscape, of course, fits in perfectly with all the change occurring in a city characterized by dense residential districts set between broad boulevards. Yamamoto's idea is to separate pedestrian and automobile traffic by confining cars to below grade and people to the landscaped ground level where apartment towers alternate with low-scale commercial buildings to form a loose checkerboard plan. "By placing service access for the commercial facilities as well as car access for each dwelling at the basement level, the entire ground surface becomes liberated for pedestrians," explains Yamamoto. Instead of organizing the project around a large park or other urban-scaled focal point, Yamamoto riddled the ground plane with sunken gardens that knit the two levels together and let daylight filter through to even the lowest recesses.

While the buildings, both large and small, fit into an orthogonal grid, the entire composition is cranked 25 degrees to meet surrounding streets and the Tonghui River running alongside the property. This orientation coupled with variations in the height of the apartment towers (which become progressively taller the farther they get from the water) make efficient use of the land and bring sunlight to each tower.

Given the scope and fast-tracked schedule of this project, it was too big even for Yamamoto to do alone. So after winning the competition, he enlisted the aid of two young Tokyo firms to help with the project's commercial components. Under Yamamoto's aegis, Kazuhiro Kojima/C+A is developing independent commercial buildings on the property, and Mikan is designing shops at the base of each apartment



Yamamoto set the apartment towers (1) and mid-rise office blocks (2) within a checkerboard, then shifted the grid to respond to the Tonghui River (below). Two office wings (3) sit to the east, while future phases will be to the west (not shown).

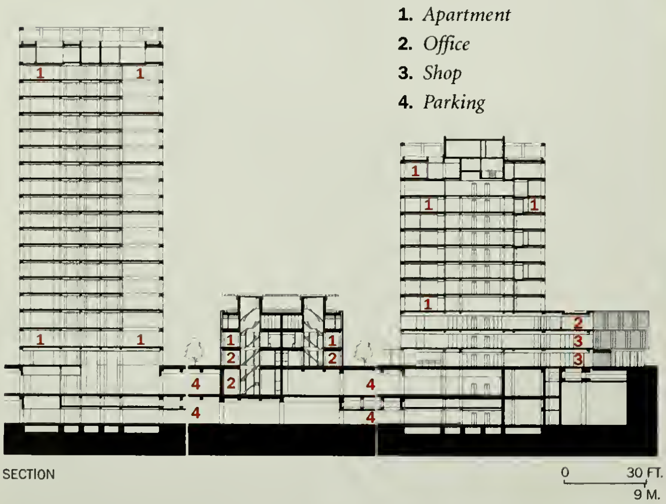
tower as well as those ringing the site's perimeter. The local firms are Beijing New Era Architectural Design and Beijing Dongfang Huatai Architecture and Engineering.

Yamamoto kept the apartment towers for himself, having established a reputation for innovative housing design with projects such as Inter-Junction City, built in the early 1990s in Yokohama, and Block 1 of Shinonome Canal Court in Tokyo, which was completed last spring and is part of a district that includes housing projects by Toyo Ito, Kengo Kuma, and others. The individual units at Jian Wai, many of which are as large as 3,000 square feet, combine dwelling and work areas and have few fixed partitions, so tenants can divide the spaces as they see fit.

To maintain harmony at the ground level, Mikan devised a modular system for the shop fronts. But it also accommodated local practices by supplying plenty of display windows and recesses for signage. "We had to find a balance between order and freedom," explains Manuel Tardits, one of Mikan's partners. Mikan's system dovetails with Yamamoto's elevations of simple white columns and beams. "I concentrated on creating an utterly abstract expression," so the buildings might take on the character of the people and activities within, says Yamamoto.

Like Beijing, the Jian Wai complex continues to grow. The company plans several more phases, pushing the number of apartments to nearly 2,000 by next year. ■

Project: *Beijing Jian Wai SOHO, Beijing*
Architect: *Riken Yamamoto & Field Shop—Riken Yamamoto, Keiichiro Sako, Masashi Hino, Mari Tochizawa, Issei Kasajima, Nobuhiro Nakamura, Manabu Maeda*
Associate architects: *C+A; Mikan; Beijing New Era Architectural Design; Beijing Dongfang Huatai Architecture and Engineering*



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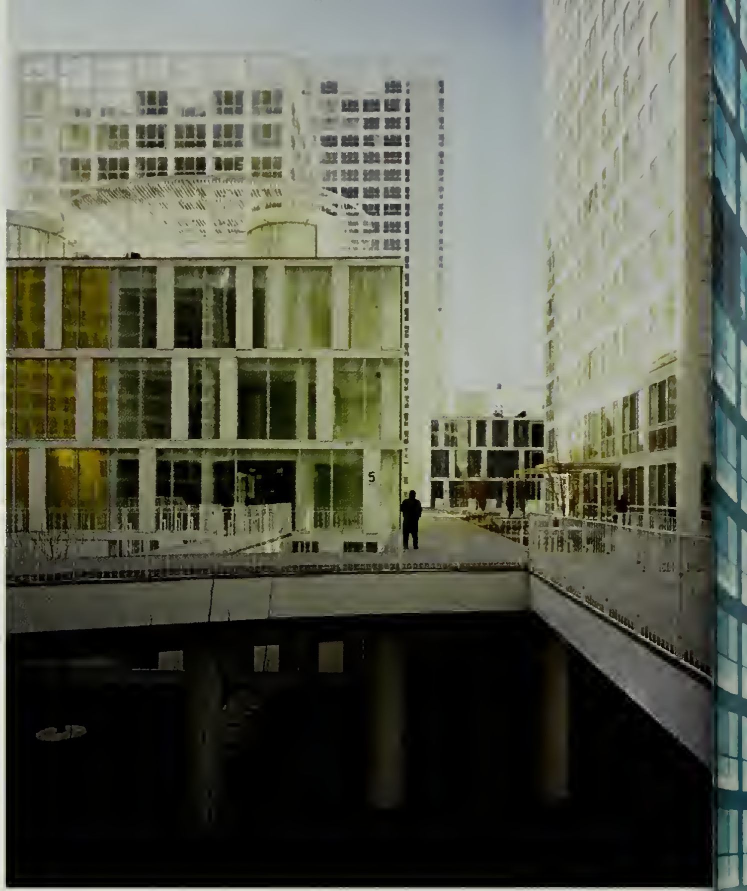
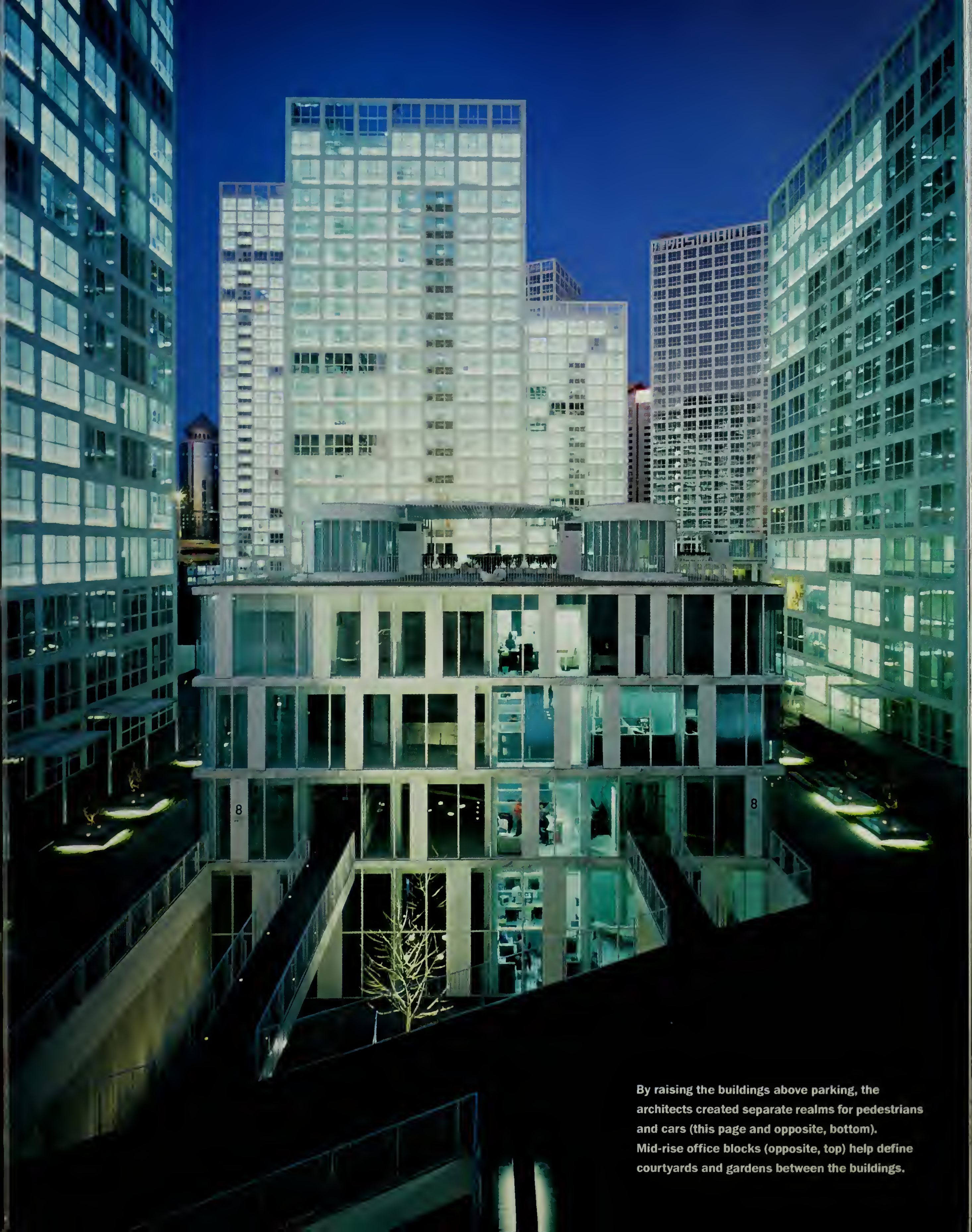
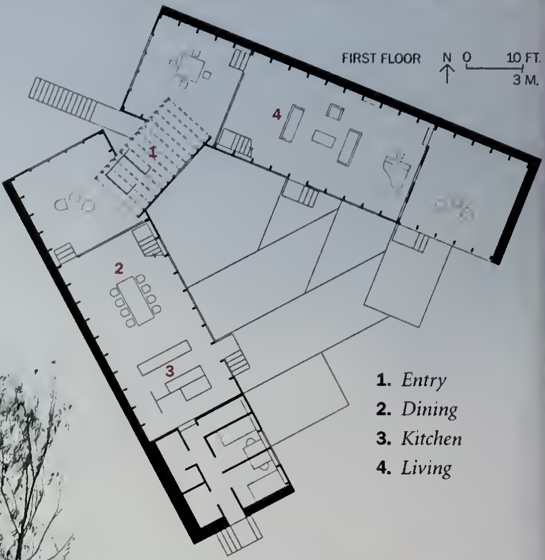




By raising the buildings above parking, the architects created separate realms for pedestrians and cars (this page and opposite, bottom). Mid-rise office blocks (opposite, top) help define courtyards and gardens between the buildings.

The two wings of the 4,800-square-foot house flare out to embrace the landscape (above). The entry (opposite, bottom) is a glass box connecting the wings (below). Like courtyard houses in the city, the main rooms (opposite, top) in this country house look onto a central garden space.



1. *Entry*
2. *Dining*
3. *Kitchen*
4. *Living*

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SPLIT HOUSE

Yung Ho Chang designs a residence that communes with nature

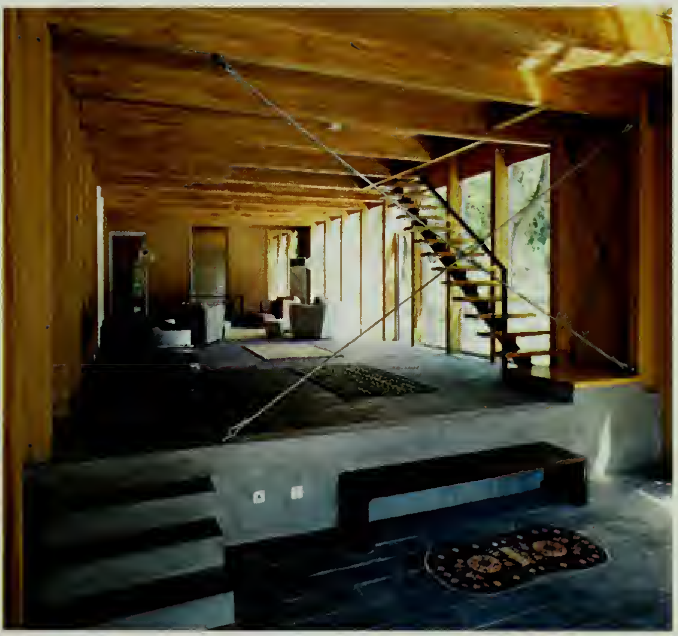
By Clifford A. Pearson

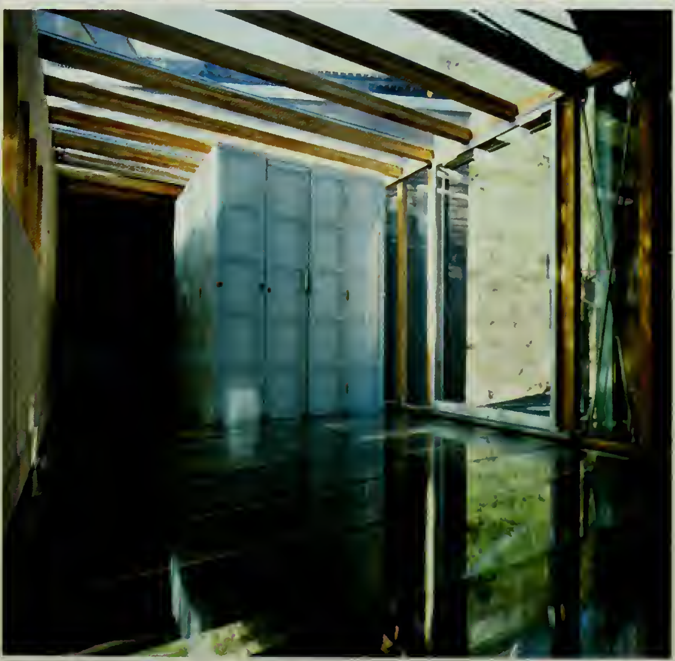
Capturing nature has obsessed Chinese artists for thousands of years, from landscape painters evoking leaf-dappled scenes to architects framing exquisite garden views. In that spirit, Yung Ho Chang and his firm, Atelier Feichang Jianzhu, designed Split House to embrace mountain and water (*shan shui*)—both literally and figuratively. The idea was "to transplant the traditional Beijing courtyard house (*si he yuan*) from its dense urban context into the pristine landscape," explains Chang. In the city, courtyards are typically surrounded by rooms. But in Yanqing, near the Great Wall north of Beijing, the architects split the house open, allowing the mountains to enclose the triangular courtyard on one side while the building provides shelter on the other two sides. Splitting the house into two wings also preserved a group of trees on the site and brought views of the dramatic landscape into the interior spaces. Chang managed to capture water, too, rerouting a small stream on the property so it runs through the courtyard and underneath the glass floor of the glazed entry foyer.

Split House is one of 12 residences designed by innovative Asian architects at Commune by the Great Wall, a project developed by SOHO China. Instead of hiring big-name firms to design the houses, SOHO gave the commissions to up-and-coming architects: Chang, Cui Kai, and Antonio Ochoa from China; Shigeru Ban, Kengo Kuma, and Nobuaki Furuya from Japan; Gary Chang and Rocco Yim from Hong Kong; Kay Ngee Tan from Singapore; Seung H-Sang from South Korea; Kanika from Thailand; and Chien Hsueh-Yi from Taiwan.

For Split House, Chang borrowed the old notion of using *tu mu* (earth and wood) as the primary building materials. In his contemporary version, a laminated-wood frame and rammed-earth walls create the basic enclosure, with floor-to-ceiling glass opening to the courtyard and the views. Since space flows in each of the one-room-wide wings, Chang was able to eliminate all hallways and create an efficient plan.

Chang sees the design as a flexible prototype, which could be adjusted to various sites by changing the angle of the plan: Depending on the site and needs of the client, the Split House could become a parallel house, a right-angle house, a singular house, or a back-to-back house. ■





Project: *Split House, Yanqing, Beijing*
Architect: *Atelier Feichang Jianzhu—Yung Ho Chang, Xianghui Liu, Xiang Lu, Lucas Gallardo, Hui Wang, Yixing Xu*
Consultant: *Minsheng Xu(structural)*

XINTIANDI

Wood + Zapata reinvents Shanghai's future by including its past

By Jen Lin-Liu

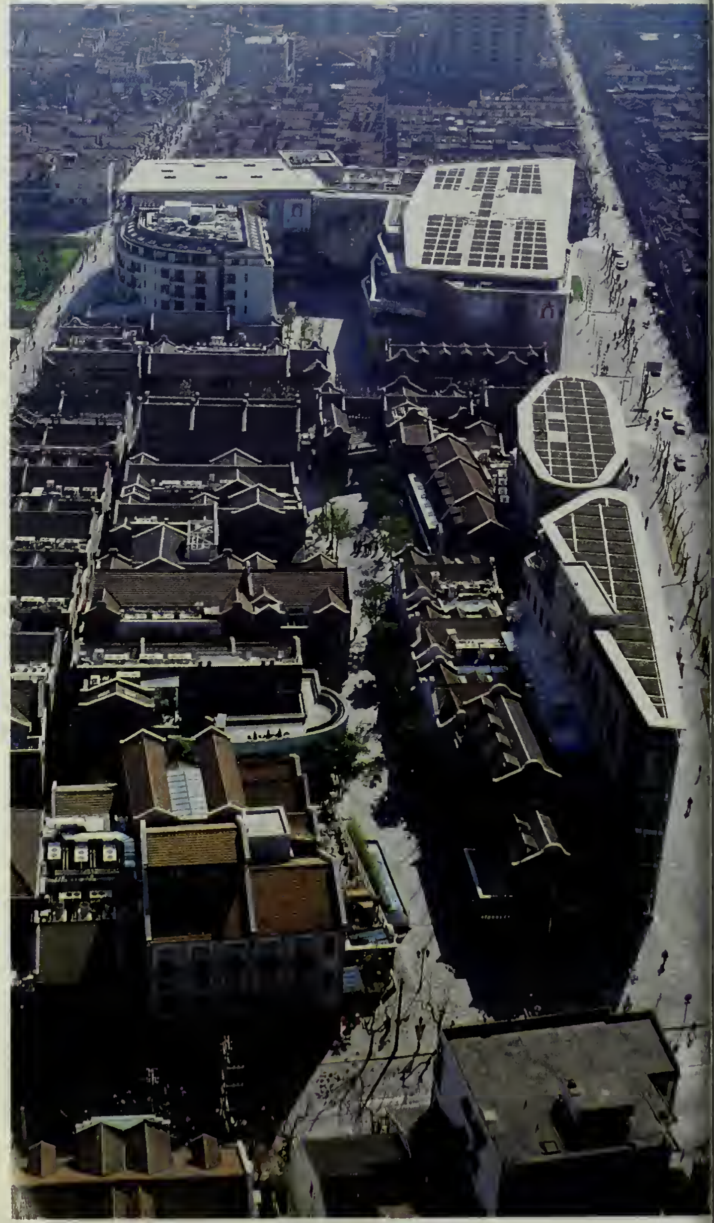
In a city that has looked to the West for architectural inspiration during the past decade, not to mention during its colonial heyday, architect Benjamin Wood, AIA, did something that many people thought was impossible: He sold the idea of Shanghai back to its own residents.

With Xintiandi, Wood has transformed two city blocks of forlorn residential buildings from the 1920s and '30s into a lively entertainment and retail quarter with chic fusion restaurants and some of China's favorite American brands, such as Häagen-Dazs and Starbucks. Tour groups from Japan and Hong Kong now wander through the cobblestone alleyways and arcades where Wood added new structures while adapting the surrounding older buildings to modern uses. By day, professionals lunch and make deals at tables lining the walkways, while at night they chug pints of lager and tap their feet to the sounds of live music. On busy days, more than 30,000 pedestrians stroll through Xintiandi. Although based in Boston, Wood's firm, Wood + Zapata, now has a busy 20-person office in Shanghai working on other projects near Xintiandi and in neighboring cities.

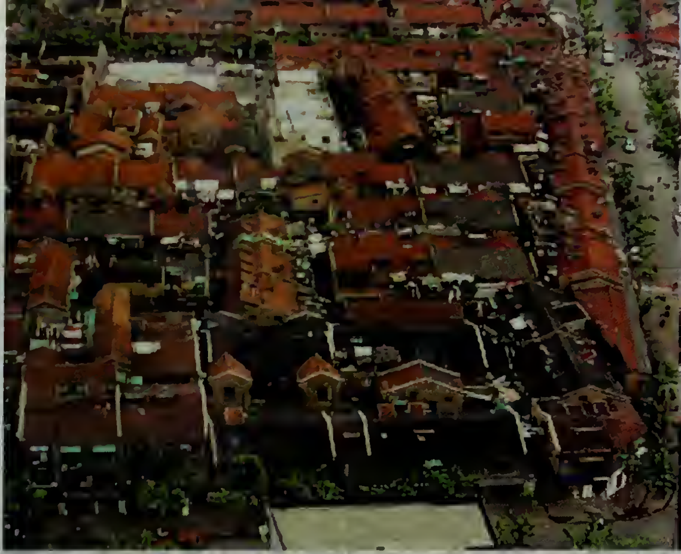
Xintiandi (pronounced *shin-tian-dee*) opened its first stores at the end of 2000 and is just the first phase of a mixed-use community called Taipingqiao (pronounced *tai-ping-chow*) that will include two luxury hotels, a 68-story office tower, 6,000 apartments around a man-made lake, a refurbished antique street, and five live theaters. The developer for the entire area is Shui On, a major Hong Kong–based company that began working in Shanghai in the mid-1980s.

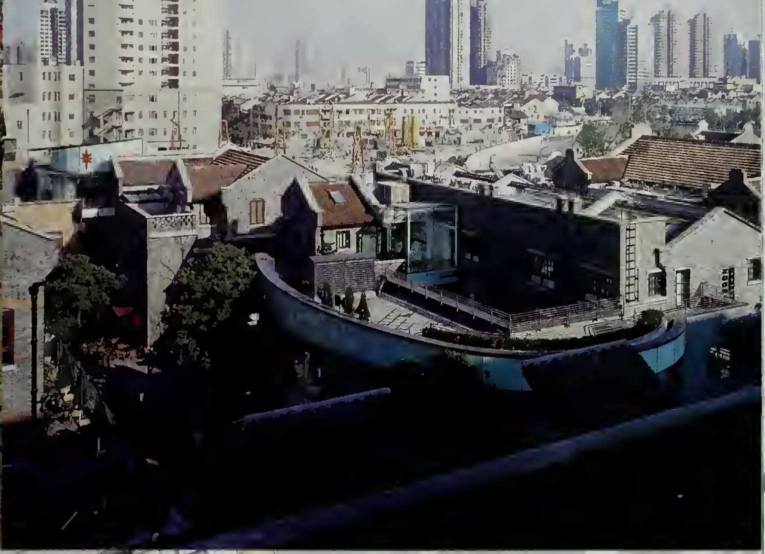
Wood credits the project with giving residents a sense of homegrown pride. In contrast to the many American-style shopping malls and office towers in the city that mimic those in the West, Xintiandi incorporates the *shikumen*, a traditional Shanghai dwelling, into its design. The success of Xintiandi convinced other developers in Shanghai that "old buildings in China are not worthless," says K.B. Albert Chan, the general manager for planning and development at Shui On. But during the building phase of the $150 million complex, the message was not an easy one to convey. The banks were wary enough that Vincent Lo, who heads Shui On ("a visionary," Wood says), had to finance the project out of his own pocket.

When Shui On started work on Xintiandi in 1998, the biggest challenge, says Wood, was convincing the skeptics—including investors, the government, and potential tenants—that such a place was marketable. An adaptive reuse project on this scale had never been attempted in Shanghai. The low floor-to-area ratio, in addition to the costliness of saving old struc-

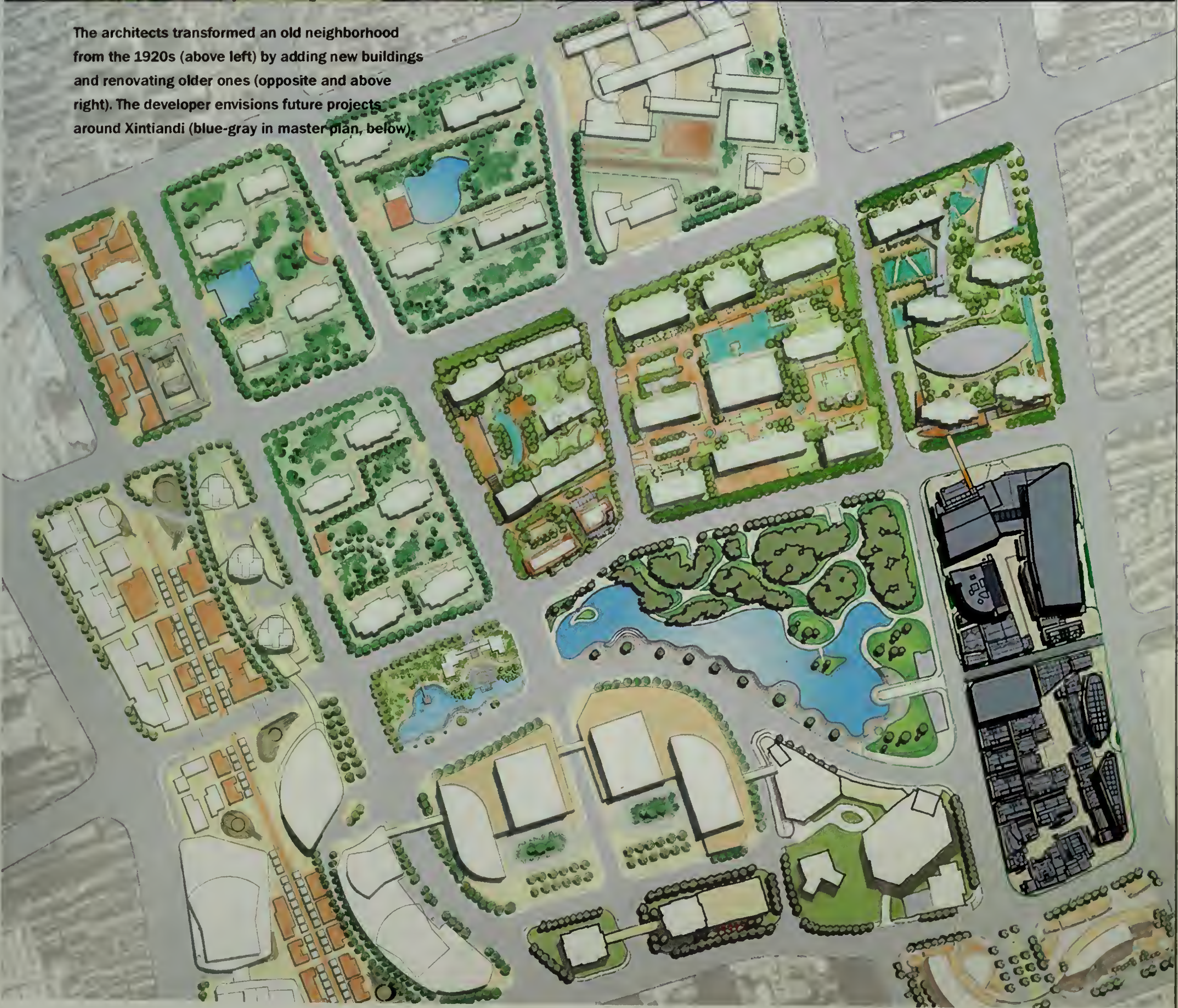


Jen Lin-Liu is a Shanghai-based writer for The Chronicle of Higher Education *and* Newsweek International.





The architects transformed an old neighborhood from the 1920s (above left) by adding new buildings and renovating older ones (opposite and above right). The developer envisions future projects around Xintiandi (blue-gray in master plan, below).



The architects boldly juxtaposed new elements with old ones (above right and below left), while preserving old pathways (above left and below right) and more than 100 stone gates (opposite, top). Most interiors are new (opposite, bottom).

tures, meant that it would take a long time for investors to reap profits. Wood recalls critics—later proved wrong—who told him it was silly to incorporate sidewalk cafés, because "no Chinese person will sit outside."

Critical to Xintiandi's popularity is the connection it makes to the past, particularly the old *shikumen*, which are unique to Shanghai and blend Western and Chinese styles of architecture. Originally occupied by middle-class families, the structures were designed by British and French architects, who combined European elements such as slate-gray bricks and French windows with Chinese features like courtyards and stone gates.

Though most of the buildings were on the verge of collapse and had to be torn down, Wood + Zapata kept more than 100 stone gates in their original positions and incorporated them in storefronts. Like doctors giving patients a shot in the arm, construction workers injected concrete into the gates through small holes to make them stronger. Whenever possible, the architects reused the slate-gray bricks and stones from the old residences in erecting new buildings. Throughout the project, architectural historians and old craftsmen worked as consultants to ensure authenticity.

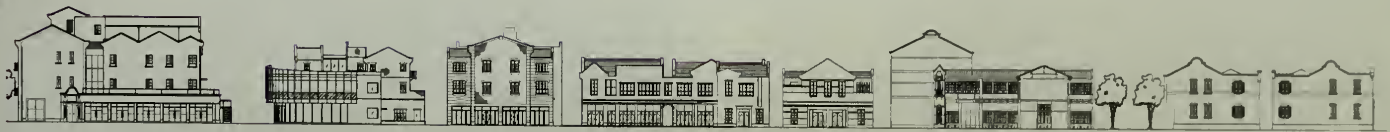
The architects also restored an old villa, which has become a private club where government officials have entertained dignitaries such as President Vladimir Putin of Russia. On the south end of the development site, the architects retained the Yi Da, the building where the Chinese Communist Party held its first national congress in 1921. Wood, though, did not approach Xintiandi as historic preservation. Instead, he saw it as an exercise in adaptive reuse, in which the buildings' historic fabric would be used as one component in creating a new place with a new identity. "When I wanted a window somewhere, I put in a window," he explains. One of the project's most distinctive structures, a building that contains the popular restaurant Luna, features a dramatic floor-to-ceiling curved glass wall.

Xintiandi also connects to Shanghai's urban fabric, something that the city's new self-contained shopping malls usually ignore. Storefronts, not blank walls, face the street. A lake and park built next door by Shui On provides a setting for senior citizens to stretch and do *tai chi*. Chan estimates that about 70 to 80 percent of Xintiandi's customers are Chinese, rather than international tourists or expats.

In a city where everything from Art Deco buildings to European-style row houses are being torn down on a daily basis to make way for high-rise developments, Xintiandi has shown that the city's historic architecture can be a valuable commodity. Chan explains that by creating an innovative project, the developer has raised the property values of the surrounding area—land that Shui On is also developing.

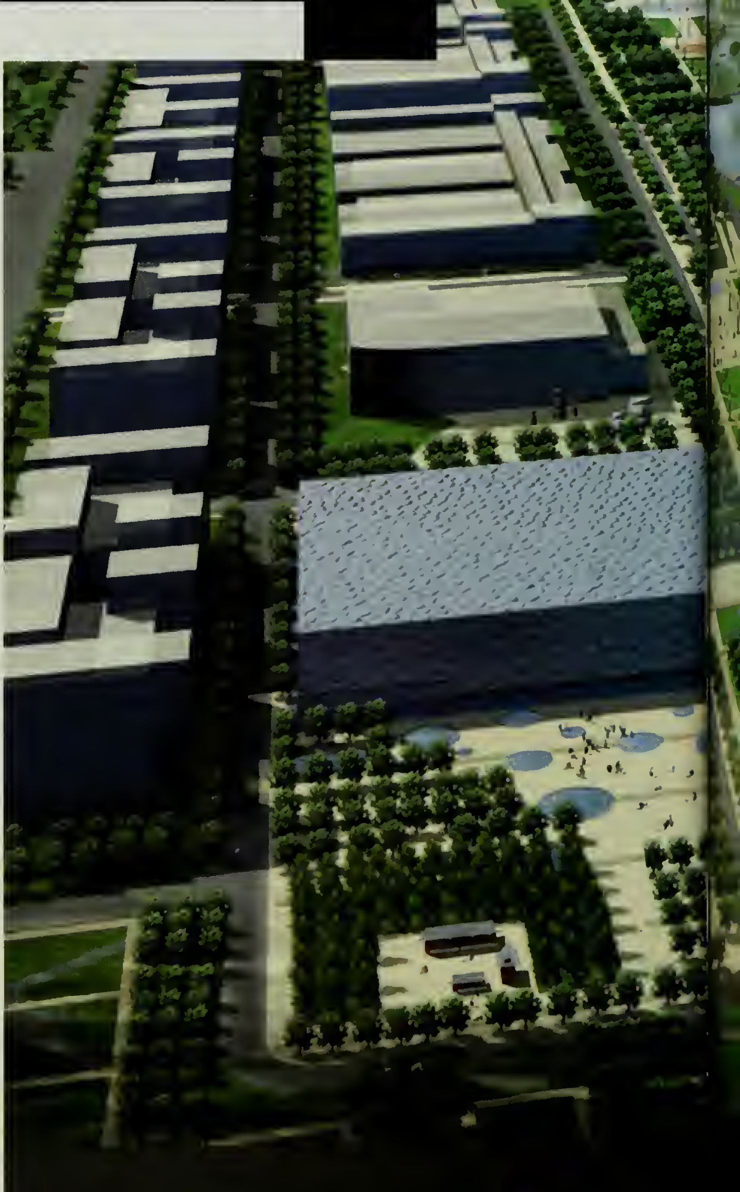
Wood says he now gets about one phone call a week from mayors around China inviting him to build a Xintiandi in their city, too. He is collaborating with Shui On on one such project, called Xihutiandi, in Hangzhou. But Chan says that few cities in China have the combination of assets necessary to create a Xintiandi. "You need an international community, [high] incomes, and very open-minded people," he explains. And having Shanghai's unique architecture to start with wouldn't hurt, either. ■

Project: *Xintiandi, Shanghai*
Client: *Shui On Group*
Architect: *Wood + Zapata—Benjamin Wood, AIA, partner in charge*
Associate architects: *Nikken Sekkei; Tongji Design Institute; SOM (master plan)*
Engineers: *Maunsell (structural); Meinhardt (mechanical, electrical)*
General contractors: *Meida; Shanghai No. 1 Construction*



2008 BEIJING OLYMPICS

Innovative architecture ready to change the face of an ancient city



By Sara Hart

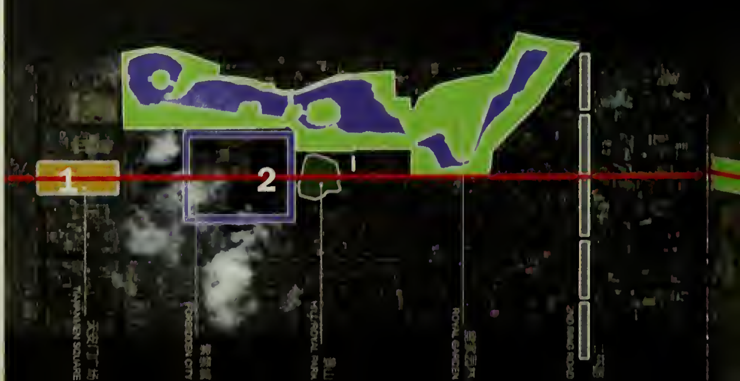
Becoming a host city for the Olympics requires, well, Olympian effort. According to the International Olympic Committee, the host city must meet strict requirements for transportation, accommodations, communications, security, and facilities. It must accommodate an influx of millions of spectators and athletes for 17 days and provide interesting cultural diversions for television programming. Applicants spend years competing with other cities, and lobbying and self-promotion alone can cost many millions. And yet, for cities that go the distance, the payoff can be huge. The 1996 Olympic Games in Atlanta generated $5.1 billion in economic impact, plus 80,000 new jobs. The New York Olympic committee, NYC2012, estimates that the New York-New Jersey region could expect tens of thousands of new jobs and a local economic impact approaching $11 billion, if selected for the 2012 Games.

After being named host city for the 2008 Olympics in July 2001, Beijing got busy making big plans. The timing was perfect, because the 1,000-year-old city is enjoying an economic boom and needs to create a modern center. The Olympics offers an opportunity to draw development away from important historic areas, such as the Forbidden City, with a strategy to reinvigorate the central core of the city.

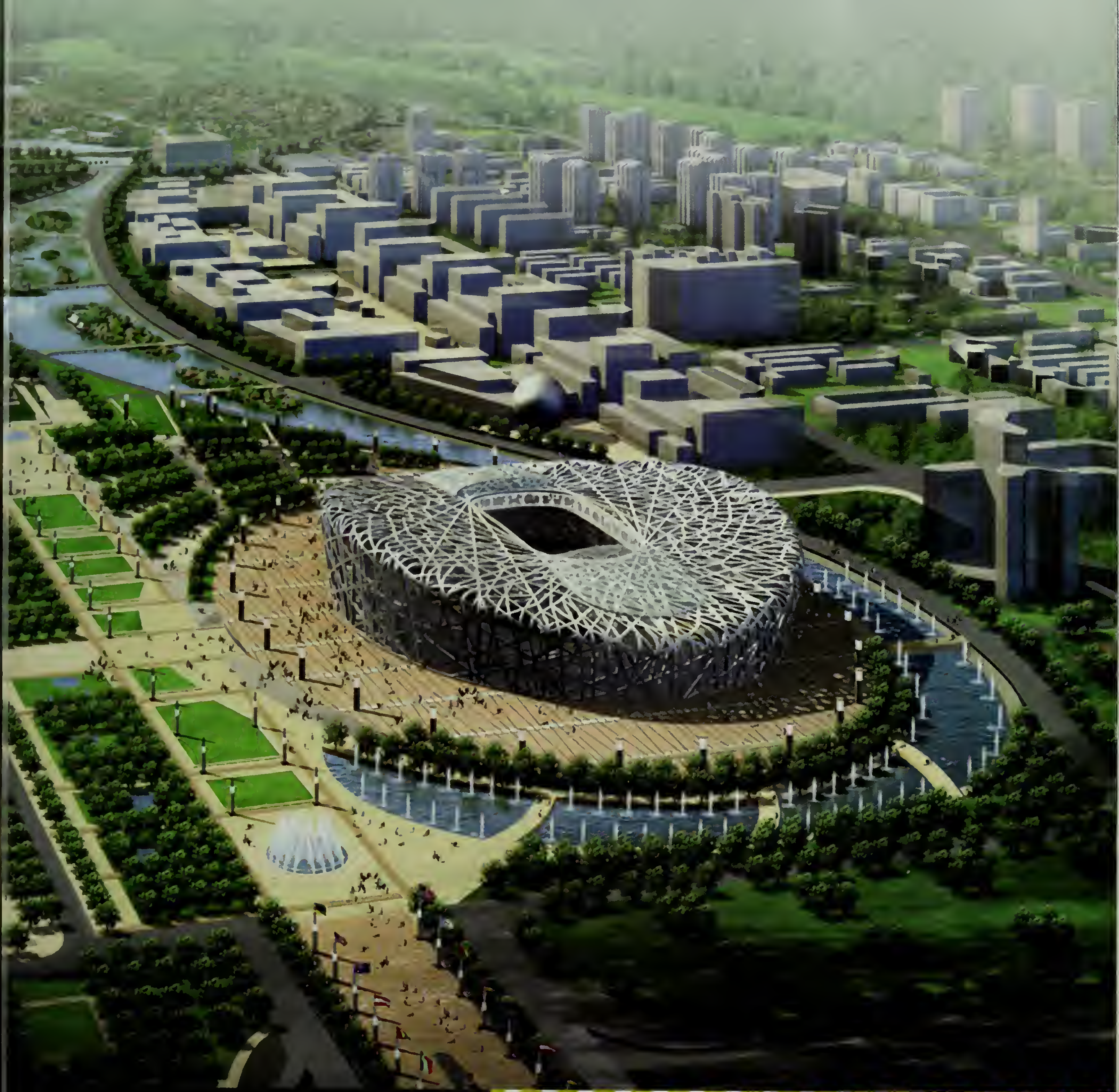
In one of its early planning moves, the Beijing Olympics committee awarded Sasaki Associates, based in Boston and San Francisco, the job of designing the 2,800-acre Olympic Green—the primary site of the games. Sasaki's strategy was to extend imperial Beijing's north-south axis and use it as the main organizing element for the sporting venues and landscape design. In addition to the main arenas, the Olympic Green will include the Olympic Village and cultural facilities. The goal is to create the framework for mixed-use development after the games.

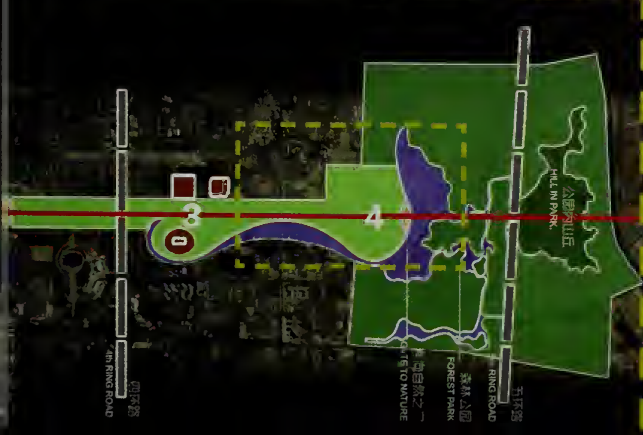
The Olympic committee later awarded the international landscape design and urban planning firm EDAW the planning responsibility for a 748-acre aquatic park in the Shunyi District. The park will host canoe and kayak events during the games and contains two large waterways, viewing stands, athletes' facilities, and green spaces.

Apparently, the 2008 Olympics will be brought to you by ethyl-



Sasaki's master plan (this spread, top and bottom left) extends imperial Beijing's north-south axis from the Forbidden City through a new urban center. 1. Tiananmen Square. 2. the Forbidden City. 3. The Olympic Green. 4. EDAW master plan (detail, opposite, bottom far right) for the Aquatic Center.

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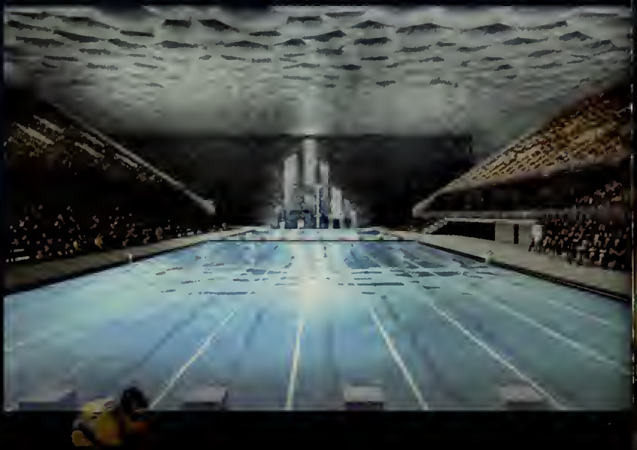
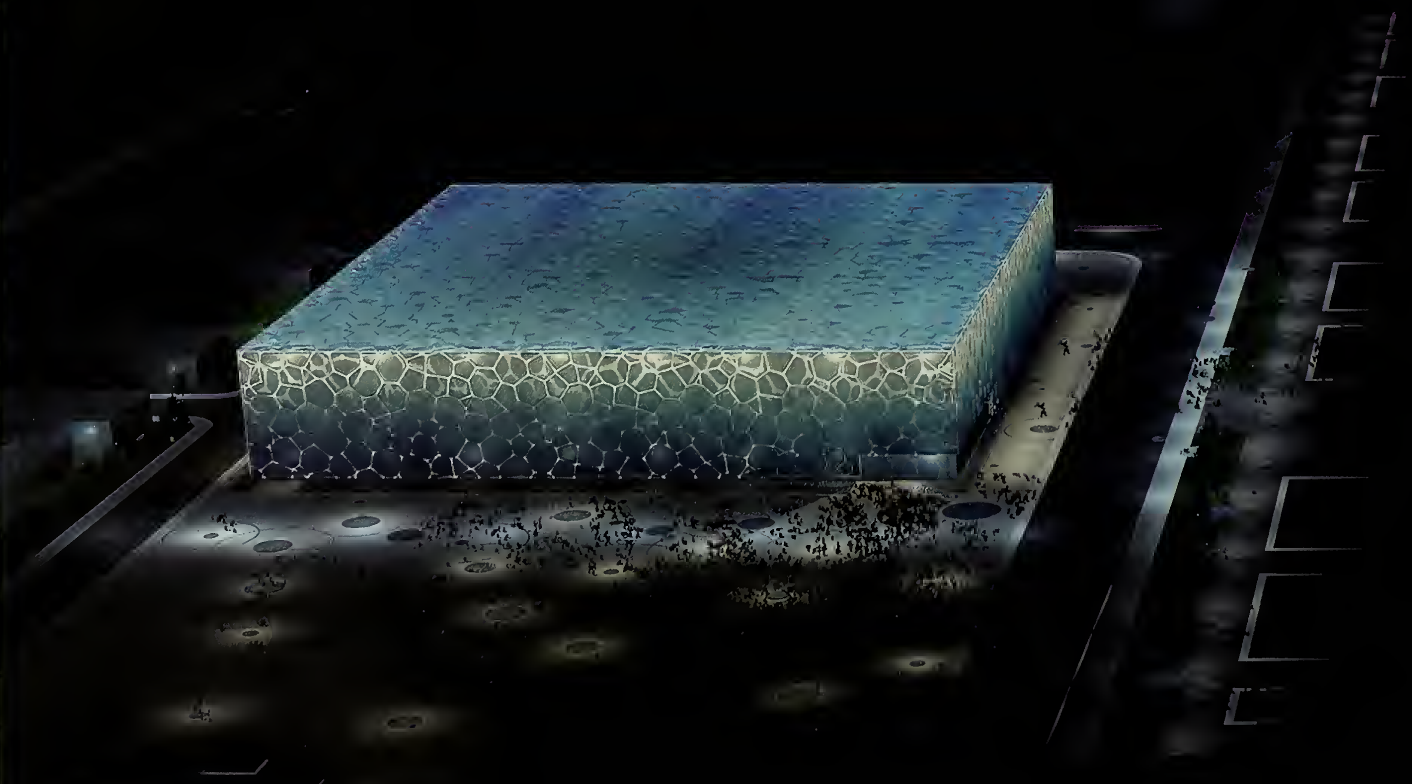
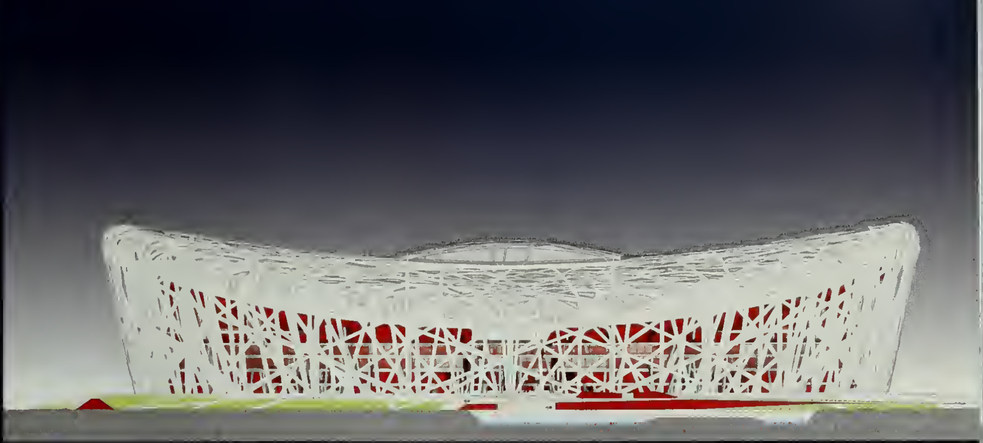
FOREST PARK
通向自然之门
GATE TO NATURE

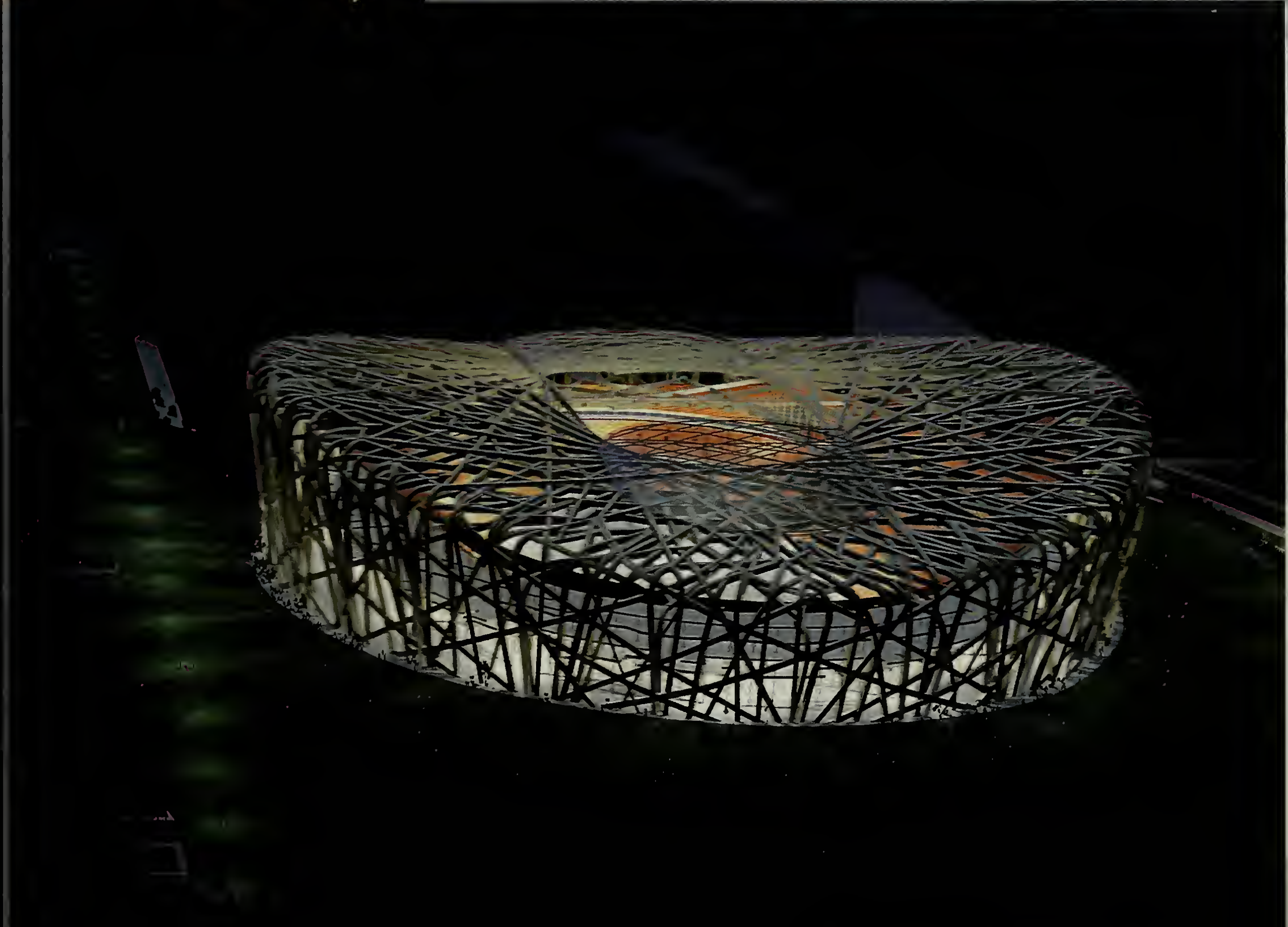




Water Cube

The structure adapted for the National Swimming Center now under construction is a simple steel space frame clad in sturdy ETFE pillows. The Sydney-headquartered architects PTW, along with Arup, designed the arena to be energy-efficient. Rainwater is collected and stored, and backwater is filtered and recycled.





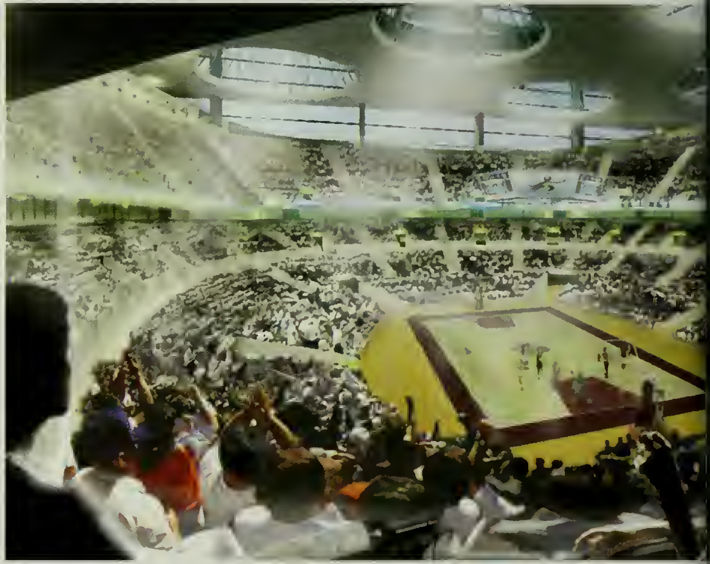
National Stadium
Herzog & de Meuron's arena will rest on an elevated area of the site. The lattice work is made of steel space frames clad in ETFE foil. Promenades run through and around sunken gardens, engraved stone carvings, and mineral hillscapes.

RENDERINGS: COURTESY THE ARCHITECTS

ene tetrafluoroethylene (ETFE), a deceptively tough, high-performance foil that is popular with European designers. The Swiss firm Herzog & de Meuron has designed the National Stadium, which it conceived of as "a collective vessel for 'the People's Olympics.'" The "bird's nest" form will be constructed of twisting space frames in which all of the elements support each other. The facades, stairs, and roof are all integrated into a single structural system. The nest is wrapped with two layers of ETFE foil: An outer layer forms the weatherproofing, while an inner layer forms an acoustic ceiling and gives the interior a smooth, consistent appearance.

Across the Olympic Green, a companion arena, the National Swimming Center, will emerge. It, too, has a nickname—the Water Cube—and will also be clad in ETFE pillows. Designed by Sydney-based architects PTW, with Arup Australasia, it will perform in the same way that a greenhouse does, by trapping solar energy and channeling it to heat the pools. The Wukesong Cultural and Sports Center, designed by the Swiss firm Burckhardt + Partner, will feature multimedia screens on the outside and hyperboloid light wells inside, serving as another example of this Olympics' commitment to using architecture as a driving force. ■

A forest of giant hyperboloid, tensile light wells (opposite, top) supports the roof of the Wukesong Cultural and Sports Center, designed by Zurich-based Burckhardt + Partner (this spread). The facade (this page, top right) is made of large liquid crystal display screens, which display the events for visitors outside.



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TIANTAI MUSEUM

Lu Wang creates a modern museum in tune with the local vernacular

By Wenjun Zhi

Since the Buddhist scholar Zhiyi taught there in the 6th century, Tiantai Mountain and its surrounding area have played a critical role in the development of Taoism and Confucianism in China. Located in Zhejiang Province, about 285 miles south of Shanghai, the area today draws visitors with its beautiful scenery and rich cultural history. The 55,000-square-foot Tiantai Museum, which opened last year, uses local history and civilization as a springboard, integrating the functions of exhibition, research, education, and leisure.

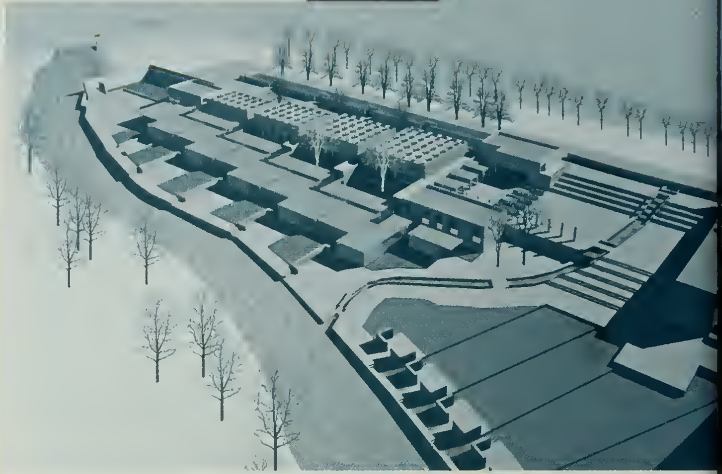
In designing the museum, Lu Wang searched for new expressions for Tiantai's vernacular architectural traditions. One of China's leading architects and a professor at Tsinghua University in Beijing, Wang understands that vernacular forms and spatial expressions grow naturally from an area's particular environment—its climate, culture, light, and available materials. But new functions and new ideas require correspondingly new forms and design strategies.

According to Wang, the architect's job is to establish the proper relationship between order, space, and function, while keeping man in harmony with nature. Ancient Buddhist temples in Tiantai offered good examples of how this balancing act could be done with skill. While learning from these traditional buildings, Wang didn't want to pursue a "Chinese national style" of architecture. Instead, he used traditional building technologies and forms—such as post-and-beam framing, courtyards, and covered walkways—to create a building that is modern in function and expression. Most important, thick stone walls defining the perimeter of the site echo the scale and massing of nearby Buddhist temples without referring to the upturned roofs of the old buildings. Inside, the museum unfolds as a series of halls exhibiting art, calligraphy, and historical and cultural artifacts from the area. Daylight slides into galleries and passageways mostly from above—through clerestory windows and skylights.

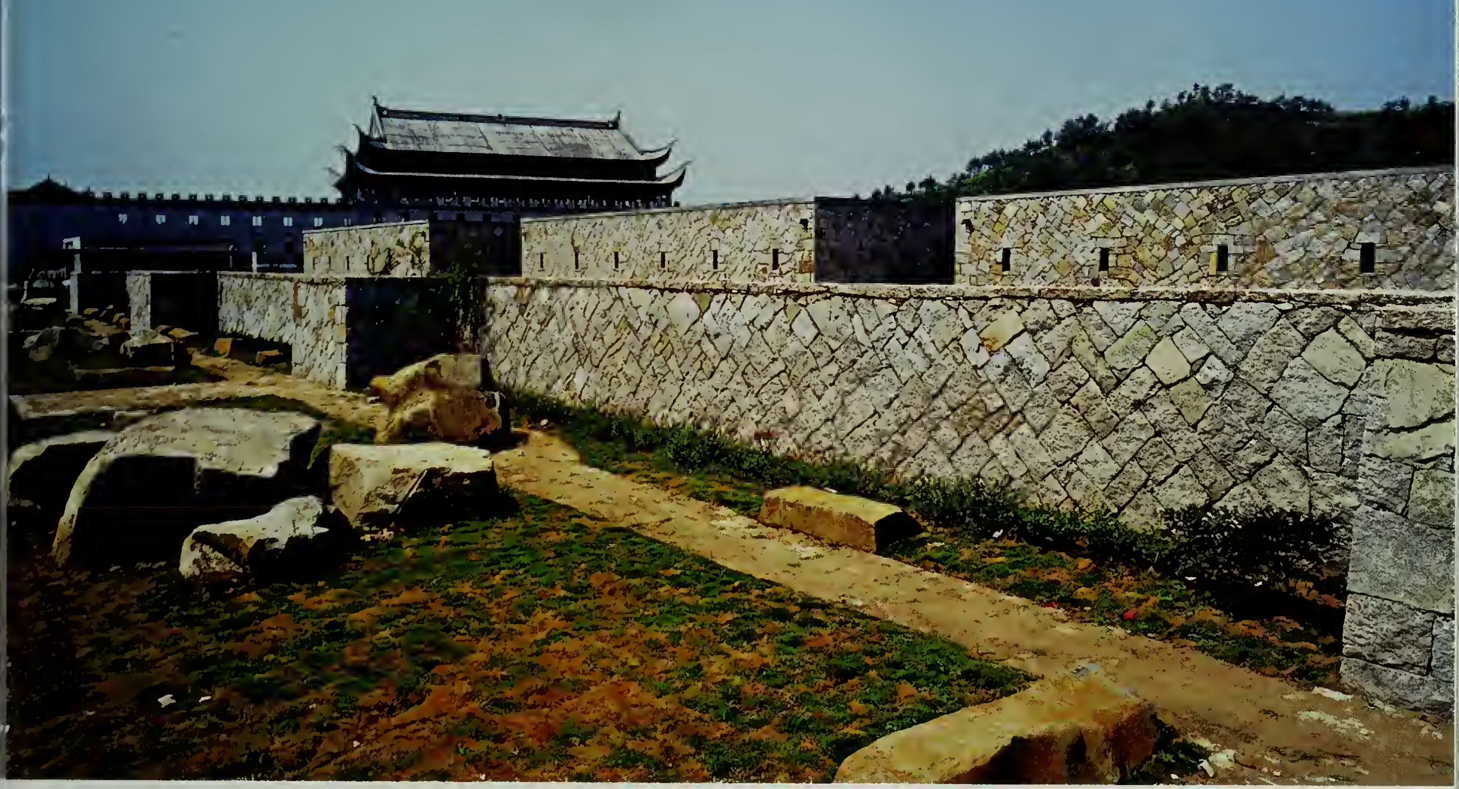
Caught between the pressures of globalization and the local people's love of their old architecture, Wang developed a design that is modern in its approach to structure and function, yet rooted in its particular place. His Tiantai Museum shows it is possible to shape a contemporary vernacular architecture. ■

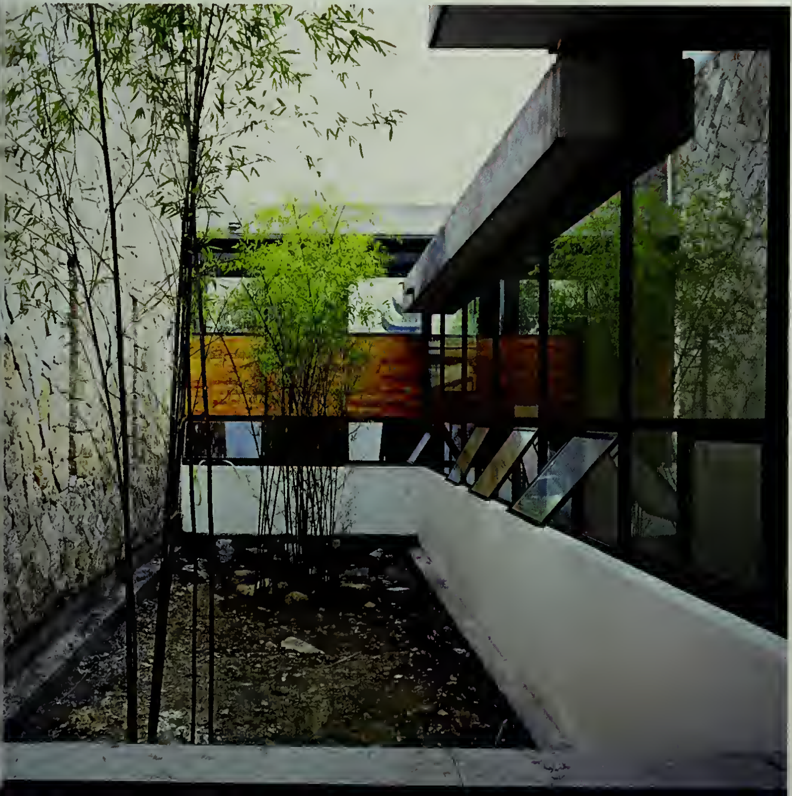
Wenjun Zhi is the editor of Time + Architecture, *a magazine published by the Tongji University College of Architecture and Urban Planning in Shanghai.*

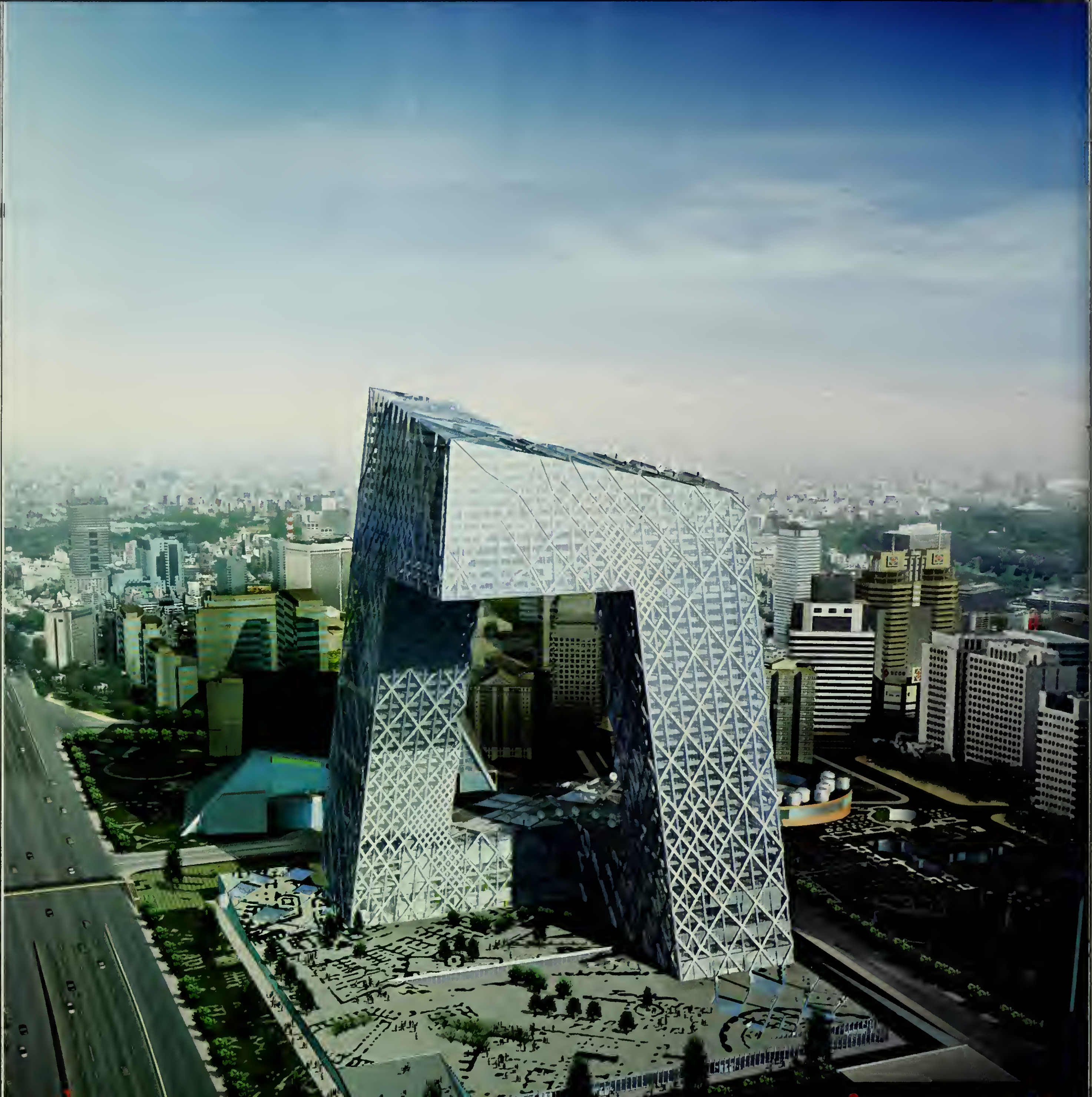
Project: *Tiantai Museum, Tiantai, Zhejiang Province*
Architect: *Lu Wang with Lianna Jia and Long Chen*
Associate architect: *Zhe Jiang Jia Jing Planning Design Research Institute*



Sitting behind a thick stone wall, the museum echoes the massing of ancient Buddhist buildings in the area (rear in photo below) and uses vernacular forms such as courtyards and covered walkways (bottom left and opposite). Inside, most of the light comes from above (bottom right).







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CCTV headquarters (1) will stand near OMA's TVCC building (2), both rising from an "animated" landscape (1, 3, 5). A rhomboid hollowed at its center, CCTV will have right angles only in its horizontal dimension. The structure will be revealed in an irregular, triangulated steel grid across its facades, varying with loads and programmatic needs (4).

CCTV HEADQUARTERS

Rem Koolhaas reimagines the skyscraper and a Chinese network in the process

By Sarah Amelar

With more than a billion viewers, CCTV is China's largest television broadcasting company. Though its current home is gated and strung with barbed wire, CCTV is poised to reinvent its public image—just in time to broadcast the Beijing Olympic games in 2008. Its new headquarters will cut an unmistakably acrobatic silhouette on the skyline. With no traditional bottom or top, no beginning or end, nor any skyward pinnacle, the building will form a huge, continuous loop, comprising 4.4 million square feet of floor area.

With this gravity-defying scheme, the Rotterdam-based Office of Metropolitan Architecture (OMA) beat out submissions from 10 international competitors, including Dominique Perrault, SOM, and KPF. Though OMA partner Rem Koolhaas has long expressed a fascination with tall buildings, this high-rise, soaring 760 feet, will be his first. Proposing a new species of megabuilding, it will bend sculpturally with one horizontal section and corner hovering 538 feet above the ground. But why pull off such an act of structural bravura? Why pretzel a tower into a twisted loop?

The iconic potential and massive visual impact of this form are obvious. But will it be more than an attention-grabber and CCTV image-maker? Ole Scheeren, who, along with Koolhaas, is an OMA partner in charge of the project, asserts that Beijing lacks a strong contemporary icon, identifying itself instead with the visually elusive Forbidden City. And, unlike Shanghai, China's capital has not experienced a skyscraper boom and transformation into a modern metropolis. Scheeren also cites the events of 9/11 for influencing OMA's development of a loop structure, with its inherent escape routes, as well as the firm's decision not to strive for the world's tallest tower. "Instead," he explains, "we took this opportunity to rethink the skyscraper—a form derived directly from the repetition of floor plates and exploitation of land for maximum profit." The architects set out to investigate the high-rise's capacity to engage space three dimensionally.

Here, on the four blocks of the 25-acre site of Beijing's future central business district, OMA had a chance to bring together a wide range of broadcasting and administrative functions that would normally occupy a separate urban sector. A second OMA building on that site, the 1.25-million-square-foot Television Cultural Center (TVCC), will include exhibition spaces, plus a hotel, a visitors' center, and a theater. A media park will form an "animated" topography or landscape, incorporating entertainment venues, as well as outdoor filming and studio areas. Embracing the public as never before, CCTV will feature Universal Studio–type tours.

Projecting an image of an open and transparent company, CCTV's façades will combine extensive glazing with an irregular, triangulated steel grid, revealing the structural system. With frequent sandstorms blowing into the city, OMA considered only a strong-reading mesh and pronounced overall form capable of holding up against the visual imprecision of the "Beijing blur." Devised with Arup, the structural system must also enable the enormous aerialist configuration to withstand the real possibility of earthquakes.

OMA's two buildings will occupy and likely influence a context that does not yet exist. Once the district is full of skyscrapers, will CCTV stand uniquely amid a forest of more traditional and anonymous structures—or will it inspire a circus of competing architectural acrobatic acts? Will it be a truly significant breakthrough in the evolution of high-rises? Whatever the outcome, the scheme—passionately debated on the Internet—has already riveted public attention in China. ■

Project: *CCTV Headquarters and TVCC Building, Beijing*
Architect: *OMA—Rem Koolhaas and Ole Scheeren, partners in charge; Shohei Shigematsu, Adrianne Fisher, Hiromasa Shirai, Anu Leinonen, Charles Berman, project team members; Qingyun Ma, special Shanghai-based adviser*
Collaborator: *East China Architecture & Design Institute (ECADI), Shanghai*
Engineer: *Arup—Cecil Balmond*

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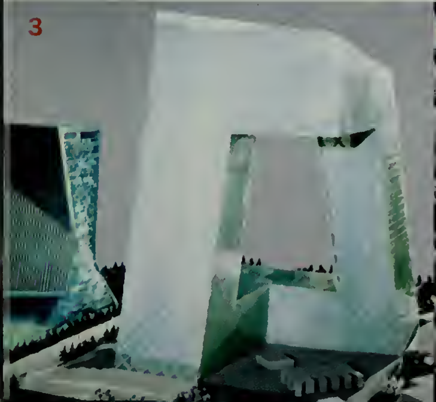

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Projects Taking Shape in China

1. Project: *Beijing Books Building*
Location: *Beijing*
Architect: *Rem Koolhaas, Office of Metropolitan Architecture (OMA)*
Program: *The $77 million project will be a phased redevelopment and enlargement of an existing bookstore in Beijing. The new building will be composed predominantly of reinforced concrete with a deep, glazed "bookshelf" facade. The store will also serve as a business center for publishing, film, television, Internet, and cultural exchange.*
Schedule: *Construction will begin near the end of 2004 and progress for 24 to 30 months.*

2. Project: *ZhongGuanCun West Office Complex*
Location: *Beijing*
Architect: *Kohn Pedersen Fox Asssociates with China Architecture Design and Research Institute (CADRI).*
Program: *A 1-million-square-foot office complex that will include a 500-foot-tall office tower, an office podium, and an exhibition bridge structure. A series of curved planes and volumes are clad with glass and metal and are designed to unfold like the petals of a plant or the feathers of a bird. An important element of the Beijing Science and Technology Park.*
Schedule: *Project completion date December 2004.*

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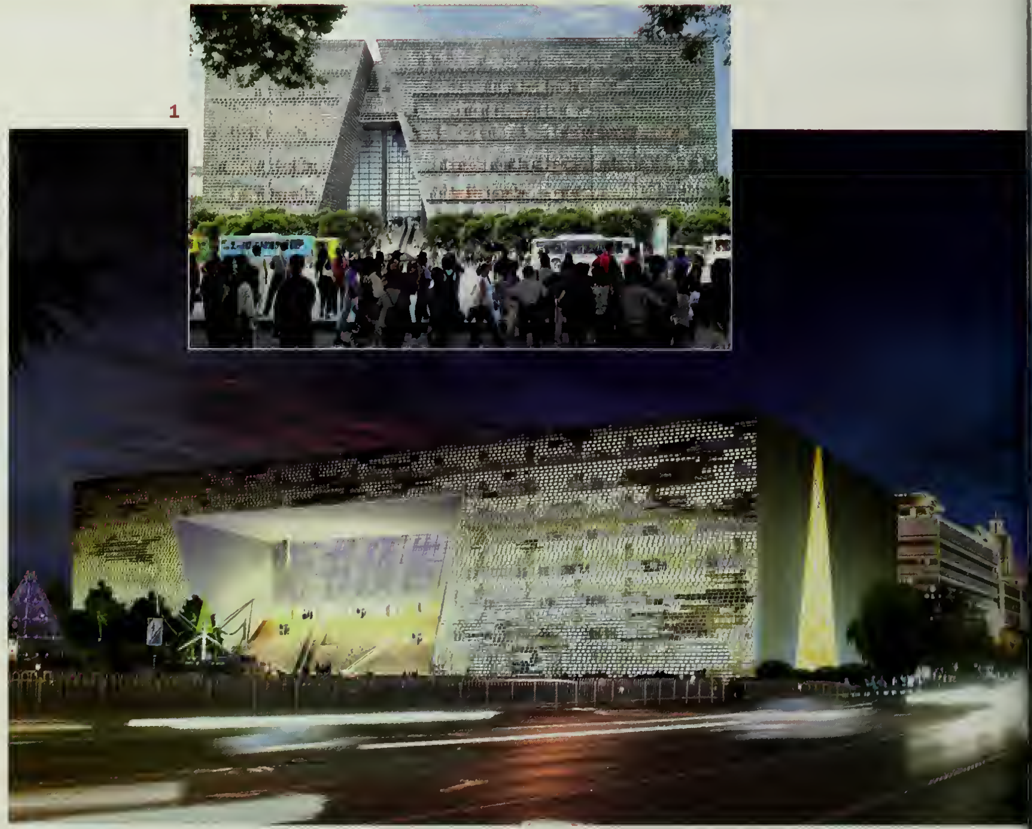

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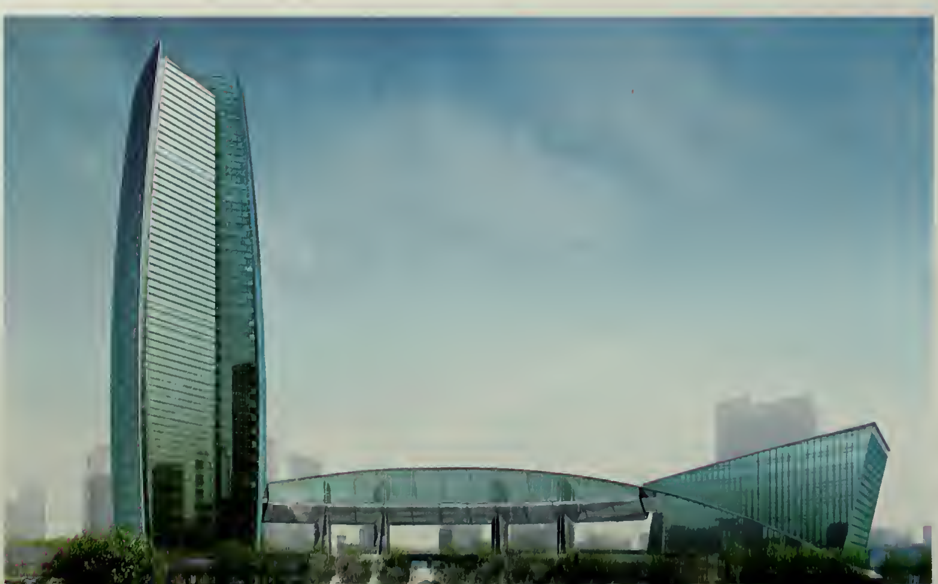


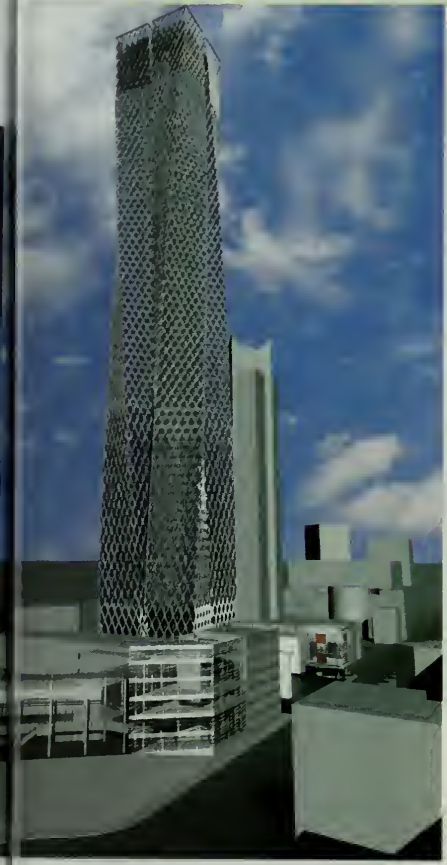
More firms are entering the Chinese market each day. Their many designs will further transform the landscape of a country already changing beyond recognition. Below is a list of just a few of the projects being designed by foreign practices in China, often collaborating with local Chinese design institutes. The roster features some of the most prominent architects in the world.

Many designs will make you dizzy with their sheer size, in a land where bigger seems to be better. Others will amaze with their originality. Encouraged by their clients to express the notion of progress, many foreign firms are using China as a testing ground for new ideas in technology, engineering, and design.

"In the United States, we are quite constrained in what we can do," says Steve Weindel, a principal at Gensler. "In China, people are a lot more tolerant and expectant of innovative design and architecture that has an impact on its surroundings and its environment."

Some of the designs may never be built. This occurs regularly in a country where so much is happening so quickly. But those that do will likely take form quickly, with construction progressing under the hands of massive crews working at all hours of the day.

Like it or not, a new China is rising very fast. *Sam Lubell*



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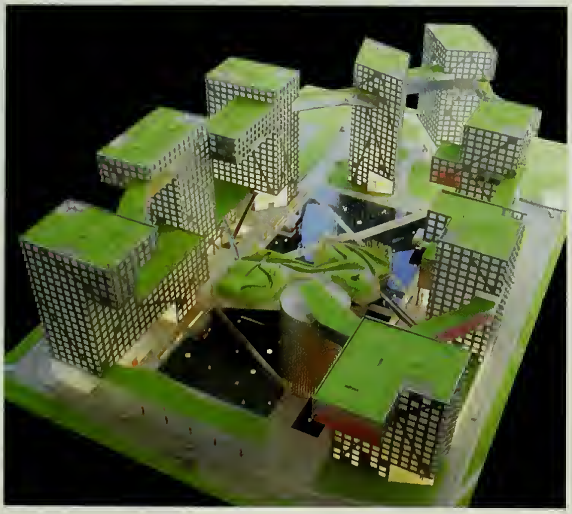

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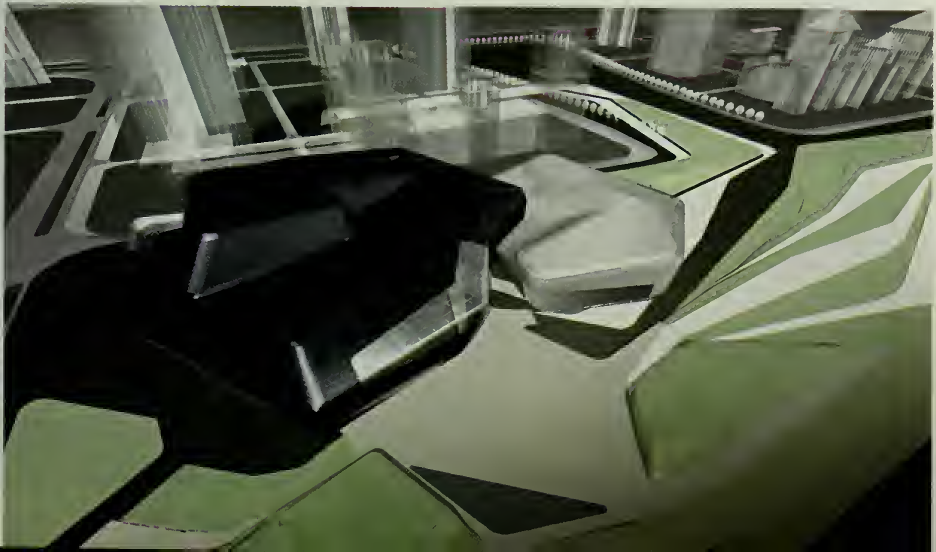

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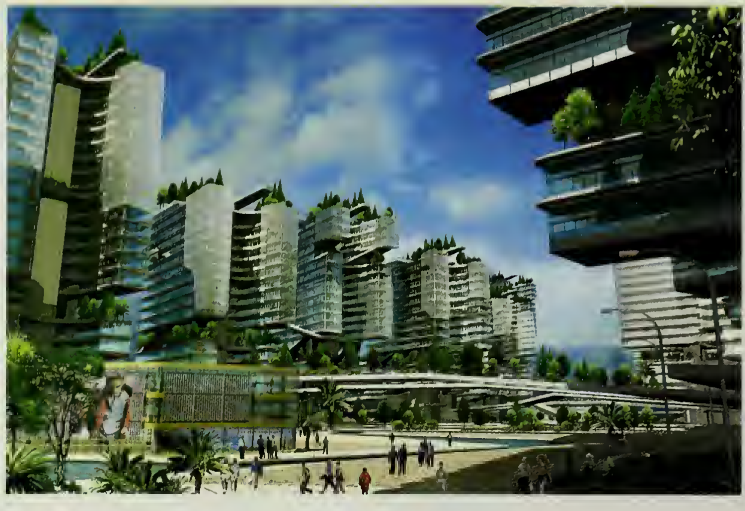
3. Project: *Nanjing Jinling Hotel Phase II*
Location: *Nanjing*
Architect: *Skidmore, Owings & Merrill (San Francisco)*
Program: *1,050 feet tall, the building is sited in the heart of Nanjing's commercial center. The building's skin forms a rigid, diagonal grid that functions like a twisting tube. The project will feature offices, apartments, and a luxury hotel.*
Schedule: *Construction set to begin in 2005, with completion in 2008.*

4. Project: *Looped Hybrid Housing*
Location: *Beijing*
Architect: *Steven Holl Architects*
Program: *Mixed-use building complex with more than 700 apartments sited adjacent to the old city wall of Beijing. Composed mainly of towers linked by a ring of cafés and services and meant to be a "city within a city." The 1.7-million-square-foot project will be able to support more than 2,500 occupants.*
Schedule: *Construction begins October 2004 and ends in 2006.*

5. Project: *Guangzhou Opera House*
Location: *Guangzhou*
Architect: *Zaha Hadid Architects*
Program: *A fluid, rigorously contoured design will provide open river access and create a new "dialogue" with the town. Standing at the foot of a major boulevard, the opera house is meant to furnish a focal point for civic and cultural buildings in the city.*
Schedule: *Not determined yet.*

6. Project: *Boan Residential Development*
Location: *Shenzhen*
Architect: *T.R. Hamzah & Yeang Architects*
Program: *2.1-million-square-foot complex will include residential, retail, sports center, schools, plazas, an ecopark, and a central park. Apartment towers are located along the periphery, overlooking vehicle-free landscaping.*
Schedule: *Construction began January 2003.*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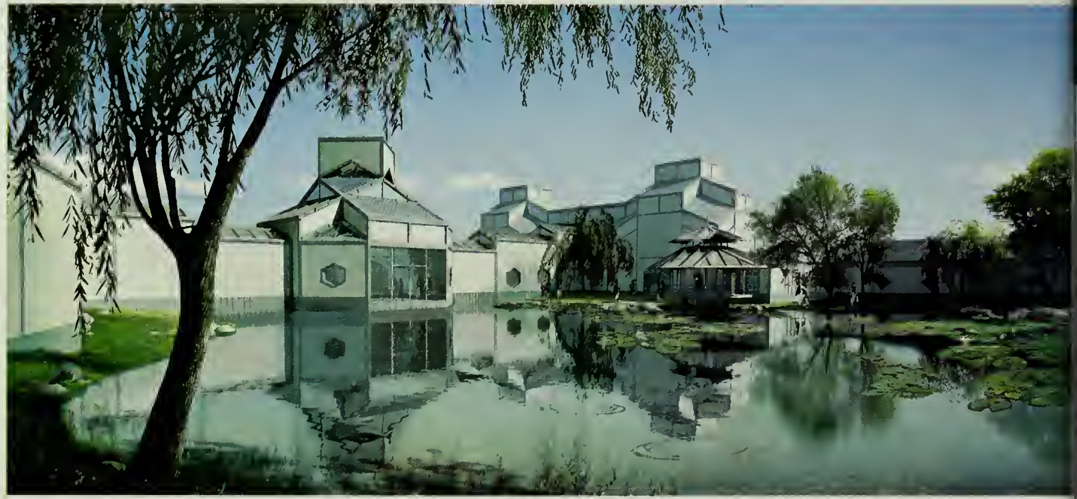
7. Project: *Suzhou Museum*
Location: *Suzhou*
Architect: *Pei Partnership with Suzhou Institute of Architectural Design*
Program: *A 1.6-million-square-foot museum of history. Located in the city's historic quarter, the concrete and glass-and-steel building is organized around a series of gardens and courts that mediate between the building and its surroundings.*
Schedule: *Construction set to begin summer 2004 and to finish in 2006.*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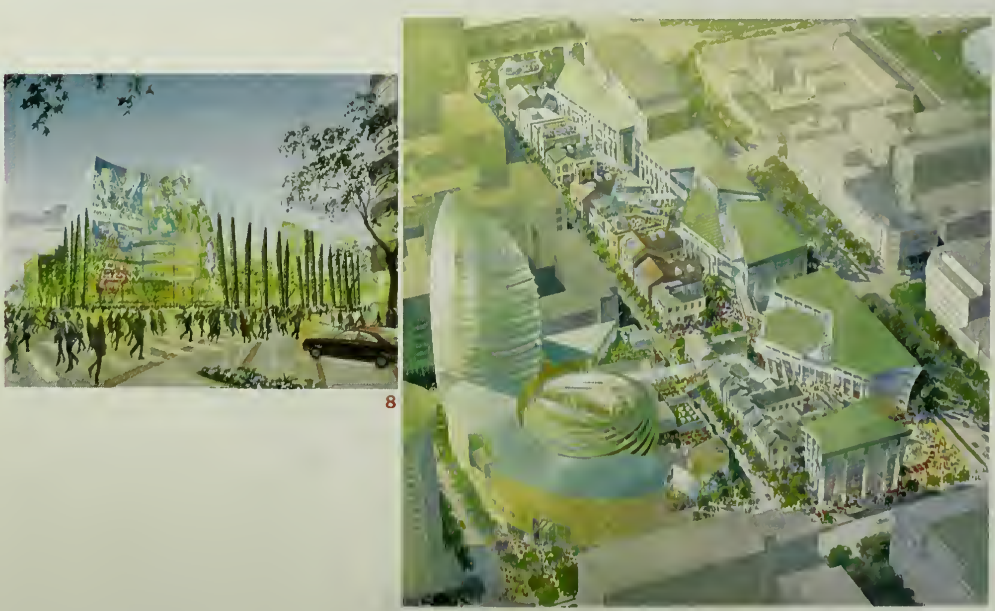
8. Project: *Hangzhou Lakeshore Redevelopment*
Location: *Hangzhou*
Architect: *Jerde Partnership with Zhejiang Building Design Research Institute*
Program: *A mixed-use district combining urban and natural components. One block is designed around a central canal that extends west into the city. The landscaped side of the canal contains a mixture of restaurants and cafés. The urban side, a three-block pedestrian street, contains retail, restaurants, and a cinema. The two sides are connected by a series of multilevel bridges.*
Schedule: *Projected opening is set for 2006.*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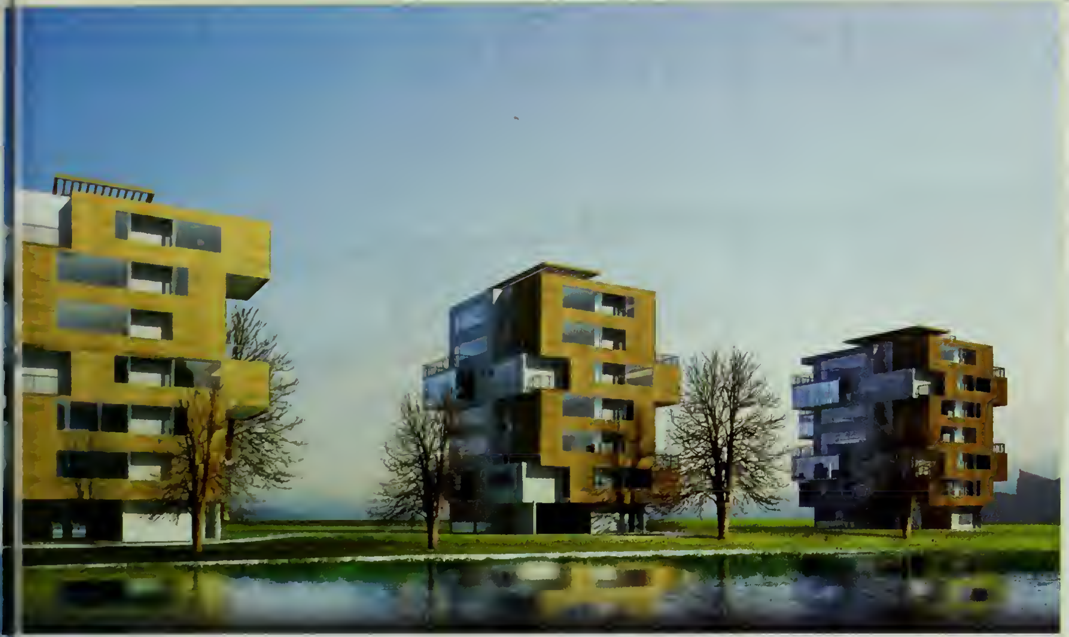

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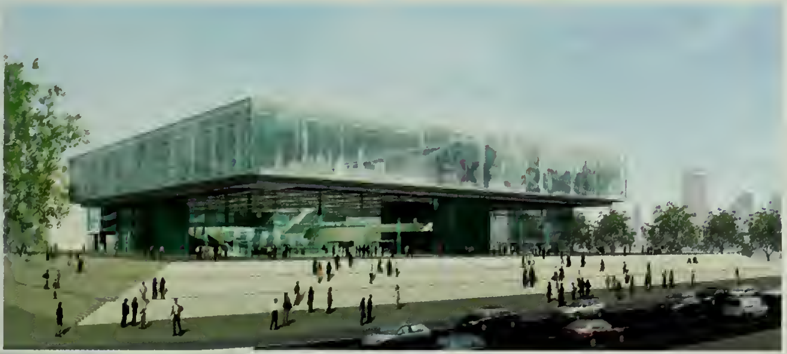
9. Project: *Anting, New Town Residential Towers*
Location: *Anting*
Architect: *Behnisch, Behnisch & Partner*
Program: *Six floors of apartment units with an attic community room and terrace. An alternative to conventional mid-rise housing, the design has the look of full units stacked above each other in an uneven fashion.*
Schedule: *No timeline set.*



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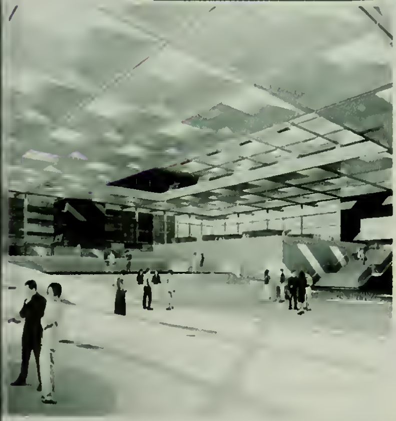
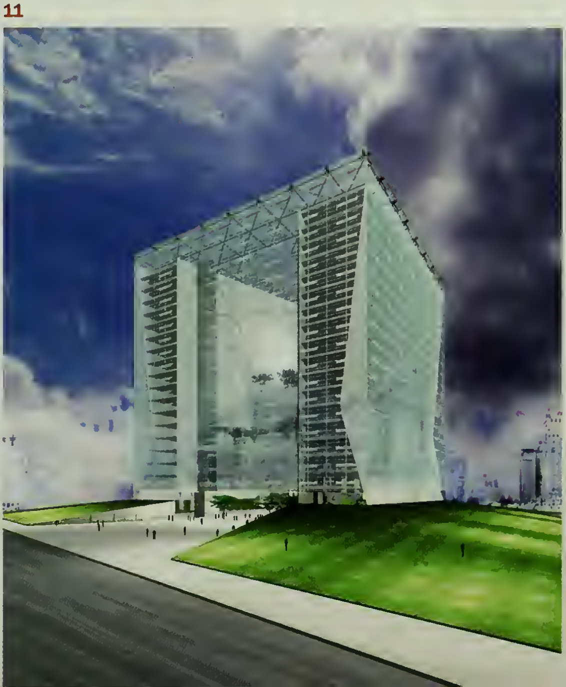


10. Project: *Shanghai-Pudong Museum (Archives and Exhibition Hall)*
Location: *Shanghai*
Architect: *von Gerkan, Marg and Partner Architects with Shanghai Institute of Architectural Design & Research (SIADR)*
Program: *The building will contain historic archives and document Pudong's history with ongoing exhibitions. The 441,000-square-foot space is lifted above the street on a "pedestal," stressing its importance. The clear cube has a semitransparent glass exterior on which movies and text will be projected via projectors mounted in wall recesses.*
Schedule: *Construction period set for 2003 through 2004.*

11



11. Project: *Lujiazui Financial Center*
Location: *Shanghai*
Architect: *Gensler*
Program: *An 800,000-square-foot, 246-foot-high office building with a transparent, double-skin exterior. The office space is organized in two wings around a central atrium. Transparent "wrapper" creates a clear cube that will be a distinct landmark along the city's river.*
Schedule: *Not determined yet.*

From the Field: China Business Blitz

Prairie Style meets China, ca. 1910 (left). Brad Perkins (center) at Nanjing U., designed by grandfather Dwight H. Post-meeting: Perkins (left) faces Shuping Hou; Aaron Schwartz (far r

By Robert Ivy, FAIA

Being the true story of how one American firm chased architectural commissions across eastern China and found a veritable pot of gold. Not without years of round-robin trips across the Pacific, 16-hour days, or jet lag.

For a new generation of American architects, stymied by the vagaries of the domestic economy, China represents potential salvation—a constantly expanding marketplace that welcomes their expertise, with projects challenging conventional experience and scale. The overall market is enormous: Consider that in 2003, China leaped from fourth to third place among construction economies, leading hungry architects to yearn for room at the Chinese banquet.

While most firms can only dream of Xanadu, the mythical realm established by Kublai Khan, ARCHITECTURAL RECORD determined to take you to this modern-day end of the rainbow—today's robust, challenging China. In April 2003, I accompanied one of the most successful architectural firms in acquiring Chinese work, Perkins Eastman Architects, a 400 person company headquartered in New York City, on a typical business trip to China.

For eight days, I tagged along as firm chairman Bradford Perkins, FAIA, who, in a 30-year career, has engaged clients throughout the world, made the rounds of clients in Nanjing, Shanghai, and Beijing. An abbreviated diary, full of sights and sounds along the way, together with abbreviated records of the Perkins team's extensive business dealings, follows.

Sunday, March 30, 2003
Day One
Shanghai

Wearing nonsensical-looking blue masks to avoid the plague of SARS, currently terrifying southeastern China 500 miles away, we land. Our flight arrives at night from Tokyo into Shanghai's sleek, new, French-designed Pudong Airport. Met by Brad Perkins and Shuping Hou (in China, name order reverses our own, but we are following the Western convention in this issue, and so does Brad, who calls his trusted friend and business associate "Shuping"), who has arranged transfer to a contemporary hotel downtown. Along the way, I jettison the mask and confront a cacophony of neon lights, bulbous or spiky towers, and musical sounds. Jet lag encourages dreamlike arrival, prompting speculation: Is this the end of the rainbow?

Day Two
Nanjing

No time to yawn. Up before dawn to catch an early train to Nanjing, joined by Perkins Eastman senior principal Aaron Schwartz and Shuping. Shanghai station is mobbed by early risers, who mill about, coughing and hacking in the morning mist. Brad and Shuping lead the way to the "soft" lounge (which refers to upholstered furniture) prior to departure. The train ride takes us through an intensely farmed landscape dotted with fish farms and lush garden plots. We arrive several hours later at Nanjing, a bustling city that at one time housed China's capital, now moderately sized for China (just 5.3 million) and laden with foggy, polluted air.

On arrival, a taxi (with a female driver) squawking loud music takes us to a Holiday Inn–like structure housing the client—the Center for Chinese and American Studies jointly sponsored by Johns Hopkins and Nanjing Universities. Inside, Chinese and Americans (including an associated firm with strong China experience, HLW) take seats at a long table—a typical scenario. An energetic young American director of the center in Nanjing, Robert Daly, conducts the discussion in Mandarin Chinese for his university associates. The director of planning and project management from Hopkins stateside has flown in for the meeting. I wonder how Daly acquired such proficiency in the difficult language and how he keeps up the pace of translation, as Aaron makes a detailed presentation of four schemes in development. With curtains closed, the group drones on about a range of topics: taxes, costs, detailed plans for the new facility. Omitting the bilingual ping-pong, this universal architectural ritual could be taking place in Milwaukee or Moscow. Like any client anywhere, Johns Hopkins needs to get the most for its budget.

Sandwiches(!) arrive in paper bags for lunch, after which Brad and I escape into a gentle spring rain. Soaking in the sweet, pungent odors and birdsong, we walk past kids in jogging suits and khakis, reaching the quiet, green heart of the campus—the Prairie-Style-with-a twist quad of Nanjing University, which had been designed by Chicagoan Dwight H. Perkins, Brad's famous architect grandfather (progenitor of another major architectural power and friendly rival, Perkins & Will) in 1910. This early, felicitous introduction to Asia continues to open doors for both firms. Vital connections continue to the present; Perkins's brother, director of the Asia Center at Harvard, is considered one of the top China scholars in the U.S. Few other architects could count such an established heritage as entrée to today's Chinese marketplace—still he works at it.

Sated by a full afternoon of poring over policy and dollars and international law, we snag a train for Shanghai as darkness falls. After drinks and dinner, I drop into bed—alone, frayed, realizing that this trip has just begun.

Day Three
Shanghai

Rather than slow down, the pace accelerates. On Monday, we have been granted an audience with a rainmaker, the vice chairman of the Shanghai Municipal People's Government, Jian Zhi Huang. This highly placed official, whose oversight includes the municipality's construction and planning management, greets us with a quiet welcome and endless cups of tea, surrounded by two fellow government employees in a centrally located conference room. Huang exudes a controlled confidence, not of the bristling American boardroom type, but suggesting an inner assurance. As the group leans forward in deference and expectation, he describes his city's comprehensive plans for the future, stressing that Shanghai will grow far beyond the immediate developments needed for the forthcoming Expo in 2010. The scale he confronts sounds daunting: In this metropolis of 4,000 skyscrapers, another 2,000 are planned, yet he never blinks. We will deal with them, he states. He emphasizes that, while most residents currently live within its bounds, the city's future lies outside its current ring road, requiring a massive population relocation to smaller new urban centers nearby. Throughout this explanation, his body language remains relaxed, confident, at odds with the scale of the upheavals ahead. Huang's self-assurance would find echoes in other boardrooms across the country, in a generation of highly educated young leadership, apparently aware of their personal and collective roles in history. They know that China is on a roll.

On the sidewalk outside the building after the meeting, the Perkins group exults in the positive encounter, certain that it will yield later work: The meeting, apparently, had been a coup. We shake off the energy by ambling for a bit. After a brief walk along Nanjing Lu, the primary shopping street, we drop in at the Peace Hotel, an Art Deco landmark on the Bund, for lunch. From the table, laden with local delights such as crystal shrimp and fresh baby eels, we can see the ships plying the Huang Pu River, apparently headed directly into the riverbank

ghai model (top); Diana Sung (center in photo, bottom left). At Summer Palace, Beijing (center). Maxdo Plaza client, Kin-Kwok Chung, surrounded by associates (right).

PHOTOGRAPHY: COURTESY ROBERT IVY

before turning—a dramatic setting analogous to the colonic bend of the Mississippi River at New Orleans, here populated by an unending succession of ships, barges, and funky small craft.

A taxicab takes us to another long table in another tall building, courting the Maxdo Plaza project, where we are joined by the recently arrived Diana Sung, AIA, another Perkins architect and firm principal. Diana has arranged the delivery of reams of presentation work, consigned electronically to local printing sources within China. (Why cart all that heavy matter across the Pacific?)

The Maxdo project did not drop from the heavens, nor arrive by unsolicited RFP. Five years earlier, Perkins had met and struck up a relationship with this client, whose ambitious project of 4 million square feet would become the largest mixed-use premium development in Shanghai. Perkins has worked to gain the client's trust and friendship, returning repeatedly himself and forging strong ties with the chairman. Perkins knows that, if the project proceeds, the time invested will be worthwhile.

The 10-acre location, currently inhabited by the ordered pandemonium of a marketplace sporting silk neckties and live chickens, comprises one of the largest undeveloped plots in the former French Concession. Properly analyzed and constructed, the project would be massive, with four towers housing residences, offices, a hotel—all rising above a shopping and entertainment venue. Serious business, with a large payout, the arrangements for planning Maxdo will be complex, involving two distinct contracts for the Perkins group—one for development management (which lies outside the bounds of traditional A/E offerings, including oversight of feasibility and marketing studies, budgeting, scheduling, construction strategies, and financial modeling), and one for the more familiar architectural services.

Critical to the Perkins execution will be the relocation of a Perkins-employed property development [illegible] Briane Randall, with heavy experience in the Asian markets, who is moving to mainland China from Canada. For this meeting, he's in the room. Conversations surrounding the final contract negotiations ultimately occupy two full days of our journey, locked in a conference room with tea and talk. But Maxdo may yield immense, meaningful work for the firm, with the potential for years of employment.

Throughout the meeting, all eyes focus on the power, centered on Maxdo chairman Kin-Kwok Chung, a well-tailored, robust-looking younger man. Such energy, such concentration, for hours on end, as he and his associates pore over the contract documents, a situation abetted by his own development project manager, Tom Marquis, formerly with the John Portman operations in China. After a day's discussion, the group leaves the total contract amount blank with plans to negotiate the total remuneration separately. According to Perkins, the contract, which has several phases, "will probably exceed $12 million" in revenues for Perkins Eastman. From just one client, with other clients to follow.

As the conversations wind down, the group breaks for dinner, which takes place in a private dining room nearby. Suddenly the mood shifts from negotiation to socializing in a space where all is ormolu and black lacquer. With a kick-off from Chung, toasts follow, eased by conversation and courses reached from the lazy susan, which is constantly stocked with jellyfish and mushrooms in abalone sauce at the hands of a multitude of silk-clad hostesses, who silently sweep the table clean. Throughout the evening, the group spontaneously erupts in laughter, yet, as in the boardroom, the gravity and the power emanate from the client, Chairman Chung. After the last toasts, we retire to the hotel, to rest before another day of negotiations.

In certain stolen moments on the Shanghai trip, during meetings and long dinners, Brad has broken away from the group for mobile-phone calls. I missed most of these. Later he informs me that he has been in contact with a potential client for the Shanghai International Medical Zone. This huge 4.4-square-mile site will include, among other things, two 500-bed teaching hospitals and a new

International face-off: Shanghai official Jian Zhi Huang and Perkins delegation (left). Sung (above left) and clients taking a breather at the Summer Palace.

campus for a medical school. In this land of beyond-plenty, more courses remain.

Day Four
Shanghai

Back to the Maxdo client's offices for further negotiations. Today, the American group meets the market research consultants, FPDSavills—originally a British firm—for the first time. Tensions mount, as the professional groups posture for turf among themselves, trading factoids and questions, such as, "Why didn't the 'superbrand' mall work well economically?" (Answer: They went ahead with "no solid market data.") Throughout the exchanges, however, Perkins remains unflappable. For five years, he has been laying the groundwork for this moment, and no unnecessary emotion will cloud the accomplishment. His own background includes real property development. But his firm cannot do it all: Perkins Eastman will serve as executive architect and design architect for the overall master plan, housing, and offices, with a local design institute as the architect of record. A specialist firm will handle retail and the hotel. There is room.

time (left). Lu Wang of *World Architecture* and I trade issues (top right). Shuping (standing left, above) translates.

In the car, headed from the hotel to the airport (one of three automobiles required for the exchange—two for people and one for luggage), Brad waxes philosophical. China has changed and is growing up. Getting paid, which had seemed so difficult in earlier years, has receded as a problem, if architects take time to carefully screen their potential clients. Instead, today he cites staying power. "It takes endurance to succeed in this work," he says without a bobble, a euphemism if I've ever heard one, as the plane lifts off (Air China/tourist class) for Beijing.

Day Five
Beijing

Below us at the Kerry Centre hotel and office complex, the capital heaves

Chasing the Work: Who Else Is In On the Act

Thanks to a red-hot economy and a massive appetite for construction, China—only a minor target for architects just 10 years ago—has become a critical architectural workplace. So many firms have made their way to the Chinese mainland that the country has become a virtual who's who of architecture, particularly in Beijing and Shanghai.

Firms with a presence in China include the Office of Metropolitan Architecture, Foster and Partners, Pei Partnership, Steven Holl Architects, HLW, Kohn Pedersen Fox, Perkins & Will, Gensler, and RTKL, to name only a few.

"It's sort of an architect's dream," says Steve Weindel, a principal at Gensler, a firm that has designed more than 80 million square feet of projects in China (although only a small fraction will get built). "They're building projects as fast as they can. In the past 30 or 40 years, they didn't build much. Now, capitalism has taken on a frenetic pace. The need for new buildings is busting out of the seams."

Echoes Paul Jacob, chairman of RTKL, "If you look at the demographics, everything points to China." Jacob's firm has completed around a dozen projects in China and plans to shoot for 10 building designs and 10 planning projects a year, he says. After having registered as a WFOE (Wholly Foreign Owned Enterprise) late in 2003, allowing for increased presence in China, the firm is planning to expand its Shanghai office by 20 people in 2004.

Rapid firm expansion like this seems to be the name of the game. Only a few firms, like Perkins & Will, which has been in China for more than 20 years and has offices in Beijing and Shanghai, are really established. The rest are setting up shop as quickly as they can.

Richard Nemeth, an associate at Kohn Pedersen Fox, designers of the upcoming 95-story China World Financial Center in Shanghai, says work in the country makes up 15 to 20 percent of his firm's total projects. The firm started building in the country only eight years ago. Now KPF has representatives in Hong Kong and Shanghai, and others visiting China every other week.

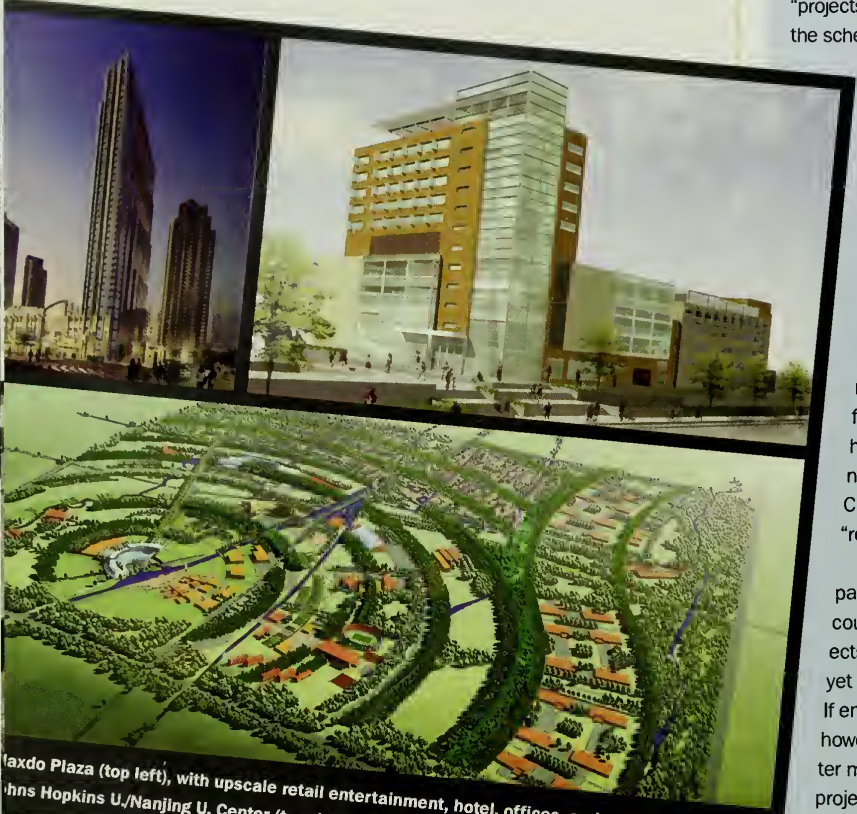
While Nemeth's colleagues spend more time in Shanghai, Nemeth adds that the capital, Beijing, has become a status symbol for architects around the world, particularly because it will be placed on the world stage during the 2008 Olympics.

"If you're anybody in architecture, you want to be building in Beijing," he says. "It's going to be a treasure trove of great architecture."

Outside the plethora of projects, another reason so many architects are going to China is the relative freedom bestowed on them.

"The client base is not locked into formulas as in the U.S.," says RTKL's Jacob, who notes that his firm is encouraged to try new ideas rather than rehash old, successful ones. Jacob adds that working in China allows his firm to break from being pigeonholed into certain building types: Although not thought of as a museum designer in the rest of the world, the firm is building the Shanghai Science and Technology Museum and the China Museum of Film in Beijing.
Sam Lubell

power, oozes growth, emitting an aphrodisiac scent (ginger? garlic?). The first morning, Perkins Eastman meets another key client, Jiang Biao, who happens to have been trained as a nuclear physicist and now functions as president of a development group whose primary shareholder is the Chinese Academy of Sciences. Youthful in appearance, he must be older and more experienced than he looks. For this client, Brad has brought a gift—prized golf gloves. Surrounded by equally postadolescent-looking bright youths, who jump up from their seats and discuss developments in a lively exchange around the table, president Biao's group debates the fine points surrounding the construction of 4,600 housing units, among other projects. Even after careful explanations, the actual composition of all their work escapes me: What is actually in planning and what lies ahead are merging into information overload. How do the architects keep the dynamic components clear in their own minds? The facts become as hazy as the cigarette smoke that fills the room.



laxdo Plaza (top left), with upscale retail entertainment, hotel, offices, and 800 housing units. hns Hopkins U./Nanjing U. Center (top right). Master plan, Jinan South City (bottom).

I do, however, understand the housing development in question. Four documents lay out the architects' schematic intentions, including 15 key questions for clarification. In addition to housing, the client lays out its plans for other projects, including one called "Cyber Garden," consisting of offices and a hotel. At a break during another luncheon (Szechuan food, more intensely flavorful than any offered in the United States, to my taste), one of the Chinese captures the rapid evolution under way when he says, chopsticks pointed aloft, that "one-third of Beijing is under construction." From the tenor of this meeting, a significant percentage is being planned in one room.

After a segue to meet a fellow editor at Beijing's Tsinghua University, I rejoin the contingent for the long march home through Beijing's rigorous traffic. That night, Brad and *(continued on page 120)*

Brad Perkins's 10 Tips for China

Brad Perkins, FAIA, a sometimes contributor to this magazine, has written suggestions for other architects interested in working in China. If you've thought about offering your architectural services in China, he suggests that most large firms have already entered the market. Firm size matters, he thinks, because "projects are often very large and the schedules are very demanding." Obviously, all those trips, and the consequent reworking sometimes required, could strain a small firm's resources.

He suggests that reputation does matter to the Chinese client, particularly an "established international reputation." Even so, the firm principal, with his or her name on the door, needs to show up. The Chinese, as a culture, "respect gray hair."

Specialized abilities in particular building types count, particularly for projects the Chinese have not yet developed expertise in. If engineering is any model, however, they will soon master most types of architectural projects, much as they can analyze and construct most engineering projects.

And a connection to, or an affinity for, China helps. Since you will spend days and weeks abroad, you should be able to treat a portion of your time as working vacation, absorbing "food, culture, and people." If you're too rigid to let go, don't.

1. Get an adviser. Someone who speaks Mandarin, capable of sorting through the opportunities.

2. Study the history, culture, and current business practices in China. The Chinese like people who know about and appreciate them.

3. Organize to free up senior resources. Sending junior members will not get the job done, or get the job.

4. Organize to do competitions. Many of the larger projects are now awarded by competition, the "better of which offer some compensation."

5. Learn what to avoid. That means which clients, and certain types of jobs, to sidestep.

6. Create the technology infrastructure. Working overseas probably means coordinating work between the United States and China, with strong, sophisticated technology underpinning the effort.

7. Get to know the good resources available in China. Renderings, models, printing, and certain production tasks are cheaper there and are of excellent quality.

8. Have something good to sell. Although stymied by the effects of the Cultural Revolution, the country is progressing rapidly. However, they need "real expertise and look to North America" for help.

9. Learn some Mandarin and obtain Chinese language capabilities. Clients speak little English, although the rate of English-speaking is increasing dramatically. Even a few phrases from the consulting team is helpful.

10. Spend time there and make personal connections. Nothing substitutes for the personal relationships that can only be forged by multiple visits, "many banquets, and time."

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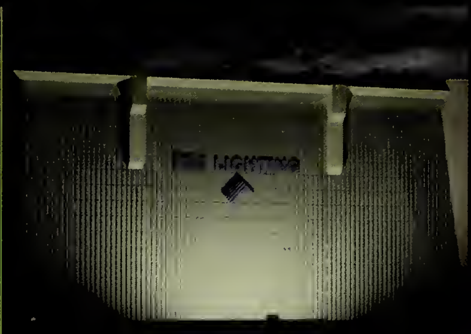

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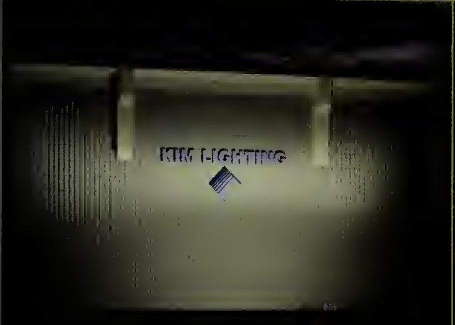
DBF14 - Narrow Flood

DBF15 - Spot

DBF16 - Narrow Spot



DBF17 - Horizontal Spot

DBF18 - Spot Grazer

DBF19 - Horizontal Grazer

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Shuping leave the group and fly to Jinan, where they meet another client. Diana Sung continues with the Science City group to an evening *son et lumière* at the Great Wall, miles away. I pass, retreating to the Kerry Centre room for a solitary dinner and sleep.

Day Six
Beijing

Brad and Shuping are visiting with a client in Jinan. Diana and the Science City client return to Beijing from the Great Wall. I join them via taxi for a full day's visit to the Summer Palace, featuring an extensive 18th-century pleasure garden that rivals Versailles—with a river diverted for the emperor's pleasure laced with lake and hillside pavilions. The team reunites that evening, after a full day's touring and client interactions, over late drinks at the hotel. Apparently the trip to Jinan paid off.

Day Seven
Beijing

Perkins and entourage meet with the Science City people, with a brief side trip for shopping at the fabled Pearl Market, where odors of fresh carp and abalone waft upstairs, kissing the knockoff Guccis and freshwater pearls as Margaret Thatcher smiles from a poster.

Day Eight
Beijing

Early that morning, I lift off for Tokyo once again, blue mask affixed, leaving the Perkins Eastman team still in place. Once aboard, I collapse into the seating, dumbfounded at the pace—a rotation repeated monthly. This trip actually was a light one for the architectural team: On Perkins's first trip of the year, he hit 7 cities in 18 days. From 30,000 feet above Beijing's lowering gray clouds, I recollect the events of my own sojourn—still slightly lagged, confounded by constant transfers and language difficulties, and wondering, after experiencing events firsthand, how he does it. If the scope of Maxdo is any indication, the implications may be worth the effort. Yet, though the stimulation and the work can prove heady, China is not for the faint at heart.

One Year Later

After all of the Perkins efforts, what happened over the course of the year?

- The Johns Hopkins/Nanjing University job is under way for the Center for Chinese and American Studies, with ground breaking in mid-2004. However, who could have predicted a plague? SARS moved north, ultimately forcing the group to ship its planning to Hawaii.
- Many of Perkins's own expectations centered on Shanghai and the Maxdo Plaza project. Two residential towers (out of four towers total) should be under construction by fall 2004, following approval by the City of Shanghai. In addition, schematic design should be approved by April, with a target for the entire megacomplex (at 4 million square feet) set for 2009, in time for the upcoming World Expo in 2010, a critical date for Shanghai. Client-tending paid off.
- The Cyber Garden, Beijing, has progressed, but with expensive roadblocks. Brad Perkins relates that after design approval of this 'small,' 1-million-square-foot complex, "the program changed, and we also found that the local institute's zoning analysis was completely wrong. We were given six weeks to completely redesign the project." A costly oversight.
- A single client took Perkins and Shuping to Jinan, where they discussed plans for an entire new city. In China, apparently, they make no small plans. And still he flies off, for more, and more. ■

ARCHITECTURAL RECORD CALL FOR ENTRIES

Record Interiors 2004

The editors of ARCHITECTURAL RECORD announce the RECORD INTERIORS awards program. Entry is open to any registered architect. Of particular interest are projects that incorporate innovation in program, building technology, form, and use of materials. The fee is $50 per entry; please make checks payable to ARCHITECTURAL RECORD. Submissions must also include plan(s), photographs (prints or large format transparencies—no slides please), and a brief project description bound firmly in an 8 1/2-by-11-inch folder—postmarked no later than April 30, 2004. Anonymity is not necessary. Winning entries will be featured in RECORD INTERIORS 2004. Other submissions will be returned or scheduled for a future issue. Please include a self-addressed envelope with the appropriate postage, and allow 10 weeks for return.

Submissions should be mailed to:
Sarah Amelar • RECORD INTERIORS • ARCHITECTURAL RECORD
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This form must be included in your submission. If you have any questions, please E-mail Sarah Amelar at sarah_amelar@mcgraw-hill.com

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Environment counts

THROUGH DESIGN, ARCHITECTS MAKE THE PUBLIC AWARE OF THE VALUE OF BUILDINGS IN THE IMPORTANT ARENA OF CHILDREN'S EDUCATION.

1.

San Francisco, California

A technical and fine arts school augments student activity with transparent outdoor/indoor work spaces and circulation areas.

2.

New York City

A streetside glass facade with a tranquil interior courtyard graces the elegant new home of a prestigious private school.

3.

San Jose, California

Urban schools can invigorate faded areas, as is the case with this facility, which straddles a residential neighborhood and a commercial district.

4.

New Hope, Pennsylvania

An L-shaped, barnlike volume provides a welcome home for the science labs and classrooms of this small, private country campus.

For more information on these projects, go to Projects at **www.architecturalrecord.com**.

By Jane F. Kolleeny

When school bond referendums hit the local news, heads turn. The community must reach deep into its pockets to fund construction, while every parent with a child in tow feels like a client. Increasingly, all residents feel they should have a say, as neighborhood resource centers inhabit school buildings and community members participate in facility planning. Architects are challenged to mediate among the constituencies, including teachers, school boards, and governing groups, molding many points of view into coherent design work, which, considering what is at risk, should be superb.

The stakes are high. Schools represent one of the American government's largest budget items: Annual new K-12 construction came in at $28.6 billion nationwide in 2003, excluding renovation. Bob Murray, vice president for economic affairs at McGraw-Hill Construction, tells us enrollments are up: "From 1995 through 2001, K-12 student enrollments grew by 6 percent in the U.S., led by an 11 percent surge in the West. Other major regions showed less growth—7 percent in the South, 5 percent in the Northeast, and 2 percent in the Midwest."

With taxes and enrollments increasing and politicians pontificating about the importance of education in this election year, positive action would seem guaranteed. Alas, the inequities among school districts makes disparity inevitable: Abundant funding in wealthy areas contrasts with overcrowded, derelict facilities in poor districts. According to the National Center for Education Statistics, in 2000 one in four schools reported at least one building in less than adequate condition. Urban schools tell a wearier tale: Disinvestment increases and living conditions worsen, even as the cost to restore aged buildings escalates. "The 'No Child Left Behind' Law left many children behind. The federal government mandated change, then did nothing significant to help the states fund it," says Todd Lee of TLCR Architecture in Boston, who does considerable K-12 public work.

RECORD editors reviewed dozens of portfolios and came away with the feeling that today, quality design of public schools is, with a few shining exceptions, difficult to achieve. Consequently, three private schools and one public school fill these pages. While we remain committed to encouraging excellence in public schools, an extraordinarily important building type, we recognize good work, whatever its source. What can be done about these concerns? The American Architectural Foundation, a nonprofit organization that seeks to inform the public on the value of architecture, has rolled out a school design initiative to promote the role of architecture in the field of K-12. Their efforts will be documented in future issues of this magazine. ■

Lick-Wilmerding High School

San Francisco

1

IN ONE STROKE, PFAU ARCHITECTURE SAVES A PRECIOUS VIEW AND PRESERVES THE MAIN GREEN IN THIS INVENTIVE URBAN CAMPUS SOLUTION.

By Lisa Findley

Architect: *Pfau Architecture—Peter Pfau, AIA, principal; Dwight Long, principal in charge; Chris Tymoff, Mallory Shure, project managers; Caroline Cassavoy, Peter Cornell, job captains*

Client: *Lick-Wilmerding High School*

Engineers: *Tipping Mar and Associates (structural); Guttmann & Blaevoet (mechanical); O'Mahony & Myer (electrical); Sandis Humber Jones (civil)*

Consultants: *Conger Moss Guillard (landscape); Revolver Design (lighting); RLS (acoustic)*

General contractor: *Plant Construction*

Size: *26,000 square feet*

Cost: *$11.5 million*

Sources

Curtain wall: *Walters & Wolf*

Cement siding: *Eternit*

Aluminum louvers: *Ruskin*

Roofing: *Hydrotech Garden Roof System*

Steel windows: *Hopes*

Doors: *Kawneer; Door Components; Appalachian Door; Eliason; Raynor*

Cabinets and woodwork: *Hellikson Design & Manufacturing; Tamalpais Commercial Cabinetry*

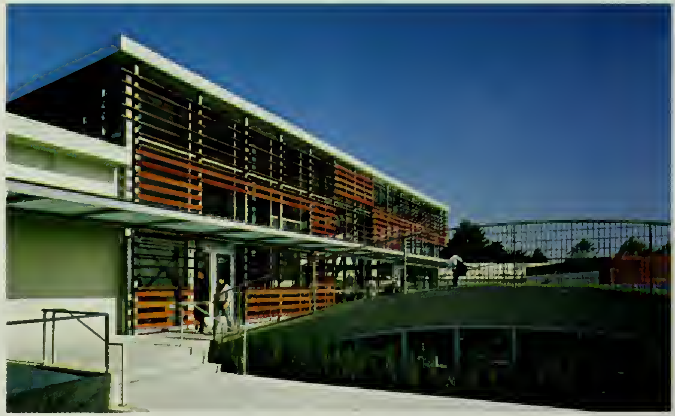
Paint: *ICI*

Flooring: *Forbo Marmoleum Tile*

Tables/chairs: *Leland International*

For more information on this project, go to Projects at **www.architecturalrecord.com.**

When industrial arts education boomed in the late 19th century, outgrowing the capacity of the apprenticeship system, private technical schools filled the gap. Today's Lick-Wilmerding High School is the result of the merging and radical evolution of three such schools. With it's motto "Education of the Head, Hands, and Heart," the unique school integrates technical and fine arts with rigorous college preparation for its 380 students.



Wooden louvers modulate light into the new cafeteria, which overlooks the public spaces and work yard. Bridges of metal grating cross over the work yard (above and opposite).

Program

By the late 1990s, Lick-Wilmerding faced a complex problem. It desperately needed 19,000 square feet of new studio facilities, as well as an enlarged theater and cafeteria. Its mostly outdated 1950s campus on the semiurban southern edge of San Francisco sits on a sloping site, bounded by private land to the west, city streets to the north and south, and the commuter-packed 280 freeway on the east. However, a large grade change allows restful views over the freeway to the hills beyond. As a result, the campus had developed over the years into a horseshoe of buildings, with its open end toward the view and its center occupied by a usually soggy lawn thought of as the heart of campus. Given the attachment to the lawn, there was only one logical place to build additional facilities: two stories over the faculty parking lot on the freeway side, thereby closing off the end of the horseshoe. With this solution as a master plan, the school resigned itself to losing the treasured view and began a competition for the new building.

Among the five short-listed competitors was Pfau Architecture of San Francisco. Known for its fresh viewpoint, the firm proposed an eye-opening solution that allowed the school to have both the large open public space and the view. It was, according to associate school head Ann Maisel, "a radical departure from the master plan that both could be executed and captured the imagination of everyone involved. We had to go with them."

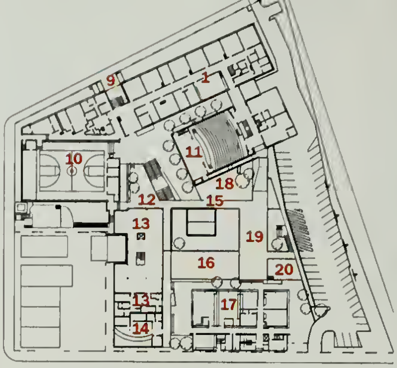
Solution

Taking advantage of the sloped site, Pfau Architecture excavated the new studios and an outdoor work yard into the quad space. The studio rooftops, at the level of the old lawn, are covered by well-drained lawns and paving, connected by metal grating bridges, and overlook the studio work yard below. Named evocatively The Hill, The Beach, The Sculpture Terrace, these new scaled-down public spaces have the intimacy teenagers enjoy. To maintain see-and-be-seen campus life, views are preserved with open steel-mesh guardrails. The new high-ceilinged cafeteria, its glass wall modulated by wooden louvers, overlooks the public spaces and work yard, spilling out on one side to an outdoor eating

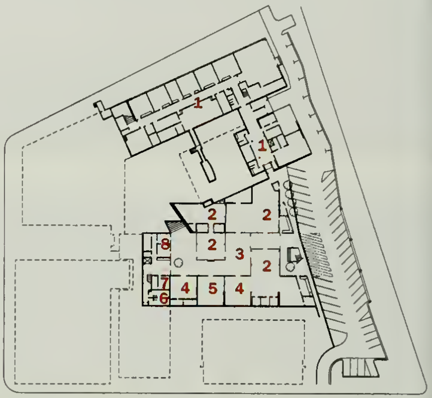
Lisa Findley practices architecture in Oakland and teaches at the California College of Arts and Crafts.

Daylight streams into the spacious, well-equipped studios (opposite, bottom), while a glassy world of activity remains visible from a wide range of places on campus (opposite, top). By digging the building in and creating the work yard as an outdoor room, the project becomes a series of connections. The spaces in between the programmed areas (above) are as important as the destination rooms.

1. *Existing classroom building*
2. *Shops*
3. *Work yard*
4. *Labs*
5. *Physics*
6. *Bathrooms*
7. *IT office*
8. *Conference rooms*
9. *Main entry*
10. *Existing gym*
11. *Renovated theater*
12. *Dining terrace*
13. *Dining*
14. *Music*
15. *Paver walkway*
16. *"The Hill"*
17. *Existing library*
18. *"The Beach"*
19. *"The Sculpture Terrace"*
20. *"The Field"*



MAIN LEVEL



LOWER LEVEL

terrace. The architects enlarged the existing theater, connected the administrative offices to the campus, and reworked the various levels between all the buildings.

The project serves as a model for the education of the students: It uses straightforward concrete, glass, and steel constructional systems; exposes mechanical systems; has a huge window into the server room; and promotes alternative energy sources through photovoltaics and four still-to-be-installed wind turbines.

After decades of having the studios tucked in dim spaces at the corner of campus, placing them in the center enlivened Lick-Wilmerding. Playing on the school's motto, Peter Pfau, AIA, presented their competition entry saying "we put the hands at the heart." A grand stair tumbles from the main entry plaza to the studio level. The work yard lies adjacent to the faculty parking lot, easing the movement of materials. Each studio has at least one wall of floor-to-ceiling glass punctuated by large doors. Project storage shelves line the window walls, so even when studios are closed, the work yard becomes a display place for the work in progress.

Commentary

"Experiencing all this transparency," says Maisel, "has been breathtaking." Indeed, with daylight streaming in on pale ocher concrete floors, the spacious, well-equipped studios for glass, metal, and woodworking do not feel underground. Instead, this impeccably detailed, glassy world of activity remains visible from a huge range of places on the campus. By digging the building in and creating the work yard as an outdoor room, the project becomes, as Pfau claims, "connective tissue." "We thought the spaces in between as important as the spaces you finally get to," says Dwight Long, principal in charge for Pfau Architecture. In addition to providing exciting new studios, the scheme resolves, with a light-handed mastery, the various outdoor spaces, the multiple geometries of the previous buildings, and the numerous floor levels generated by the sloping site. ■

Lycée Français
New York City

2

POLSHEK PARTNERSHIP MAINTAINS AN OLD SCHOOL'S ELEGANCE WHILE DELIVERING SPACE, LIGHT, AND UNITY TO ITS NEW BUILDING.

By Sam Lubell

Architect: *Polshek Partnership Architects—Susan T. Rodriguez, Jim Polshek, design partners; Joseph L. Fleischer, managing partner; Joanne L. Sliker, project manager; Chris Andreacola, project architect; James Sinks, technical director; Charmian Place, director of project interiors*
Client: *Lycée Français de New York*
Engineers: *Cantor Seinuk Group (structural); Thomas Polise Consulting Engineer (mechanical); Langan Engineering and Environmental Services (geotechnical)*
Consultants: *Judith Heintz Landscape Architecture (landscape); Brandston Partnership (lighting); Shen Milsom & Wilke (acoustic/telecom/A/V); Harvey + Marshall (theater); Gordon H. Smith Corporation (curtain wall)*

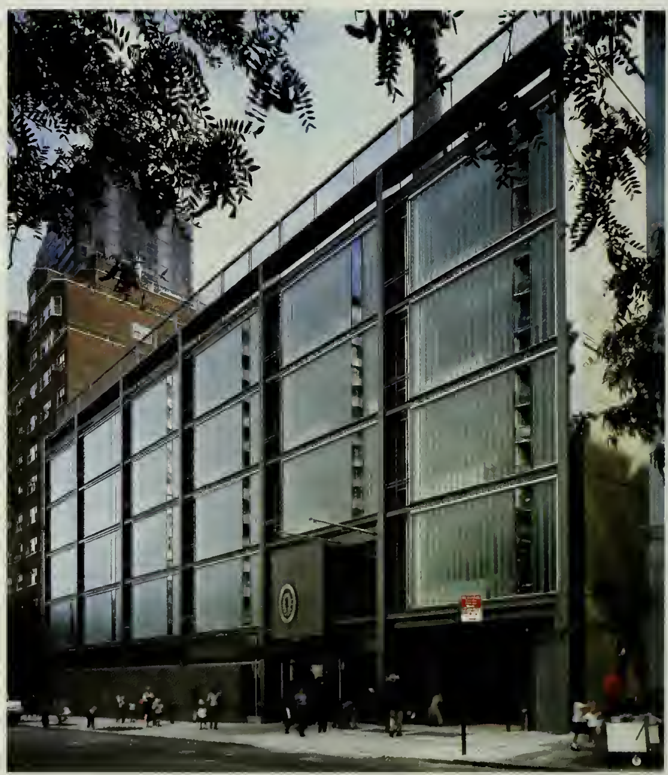
Size: *158,000 gross square feet*
Cost: *$55 million*

Sources
Security: *Ducibella Venter & Santore*
Hardware: *Richard Hausler Glezen Fisher*
Metal/glass curtain wall: *W&W Glass Systems*
Channel glass: *Lamberts; Bendheim Wall Systems; W&W Glass Systems*
Precast-concrete facade panels: *BPDL Béton Prefabriqué*
Masonry: *Tri-State Brick & Stone*

For more information on this project, go to Projects at **www.architecturalrecord.com.**

Lycée Français' new campus on Manhattan's Upper East Side offers a study in contradictions. Divided into north (Upper School) and south (Lower School) towers and linked in the center by common spaces, the building alternates between spacious and intimate, Modern and traditional, practical and elegant, urban and insular.

The architect, Polshek Partnership, has skillfully integrated a wide array of competing needs into a building program that was demanding even by New York City standards.



Program

The French school made the difficult decision to leave its beautiful (but cramped) Beaux Arts town houses, scattered on six sites throughout the East Side, in 1999. Completion of the new quarters in 2003 made Lycée Français the first independent school in Manhattan to build a new facility in decades (like the Lycée, New York's other schools had for years been adding new buildings as needed in a piecemeal fashion).

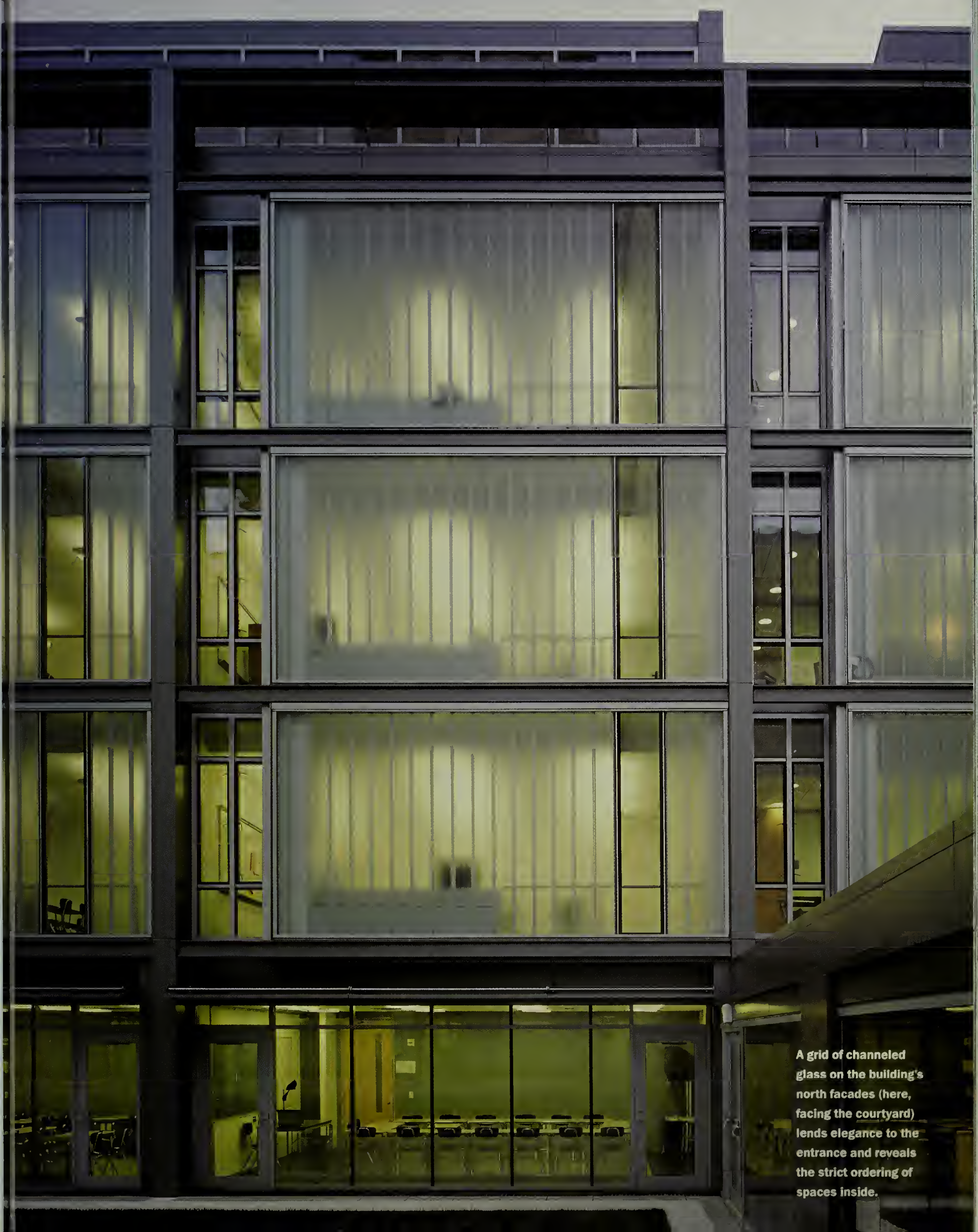
Before the move, says Yves Thézé, the school's head, students of various ages had little sense of connection with each other, while most spent considerable time in transit. Thézé says he took an average of twenty cabs a week, shuttling between the school's various buildings. Thus the new location provides more space and modern facilities and also, Thézé says, a school spirit and a sense of community that was long-missing.

But accommodating 1,250 students and faculty once housed in six buildings into one, 158,000-square-foot space was not achieved without a struggle. Another formidable effort was incorporating the cherished elegance of the school's former buildings, as well as the strict French desire for order, into a sleek Modern building that had no interest in trying to imitate the past.

Solution

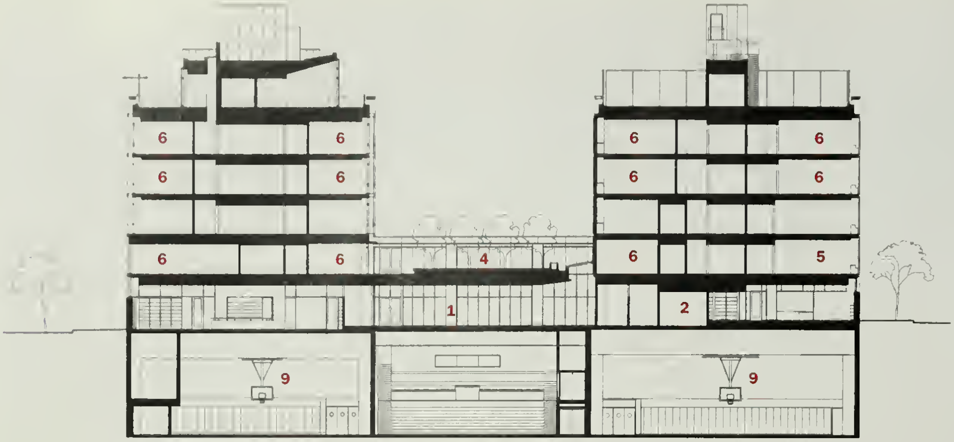
With space at a premium, Polshek first pushed areas with no need for natural illumination, like the gymnasiums and auditorium, underground, through extensive excavation.

Above ground, the firm employed horizontal sight lines throughout the building to maximize the appearance of space. For example, one can see straight into

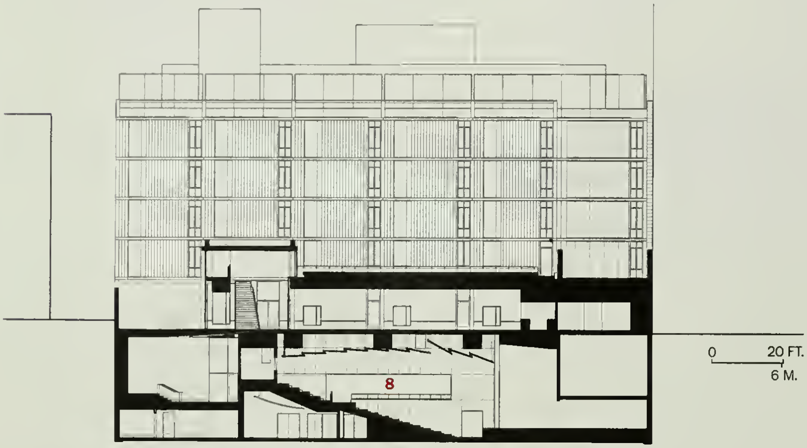


A grid of channeled glass on the building's north facades (here, facing the courtyard) lends elegance to the entrance and reveals the strict ordering of spaces inside.

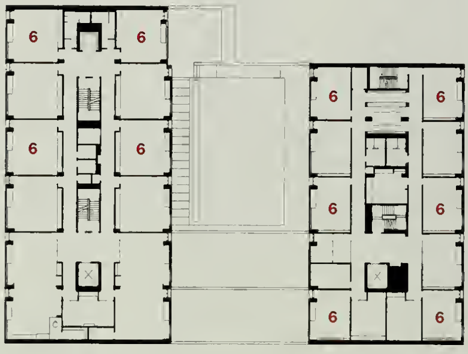
1. *Commons*
2. *Library*
3. *Playroom*
4. *Courtyard*
5. *Offices*
6. *Classrooms*
7. *Drive-through*
8. *Auditorium (future)*
9. *Gymnasium*



SECTION A-A

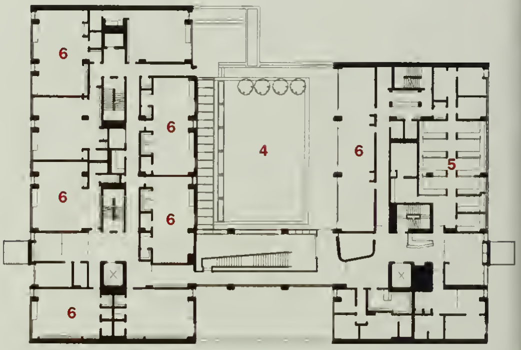


SECTION B-B

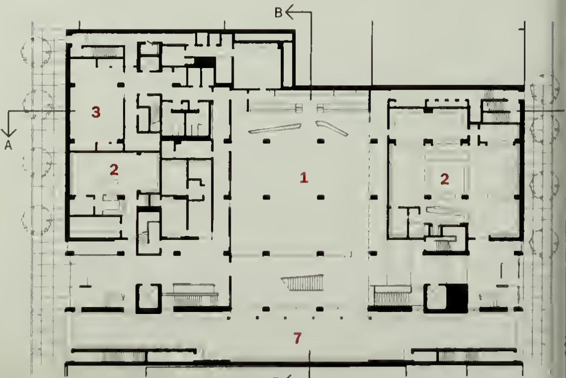


THIRD THROUGH FIFTH FLOORS

Light penetrates the building's commons from above and from all sides (below left). Areas with no need for natural light, like the gymnasiums and auditorium, have been pushed underground through extensive excavation (elevations above).



SECOND FLOOR

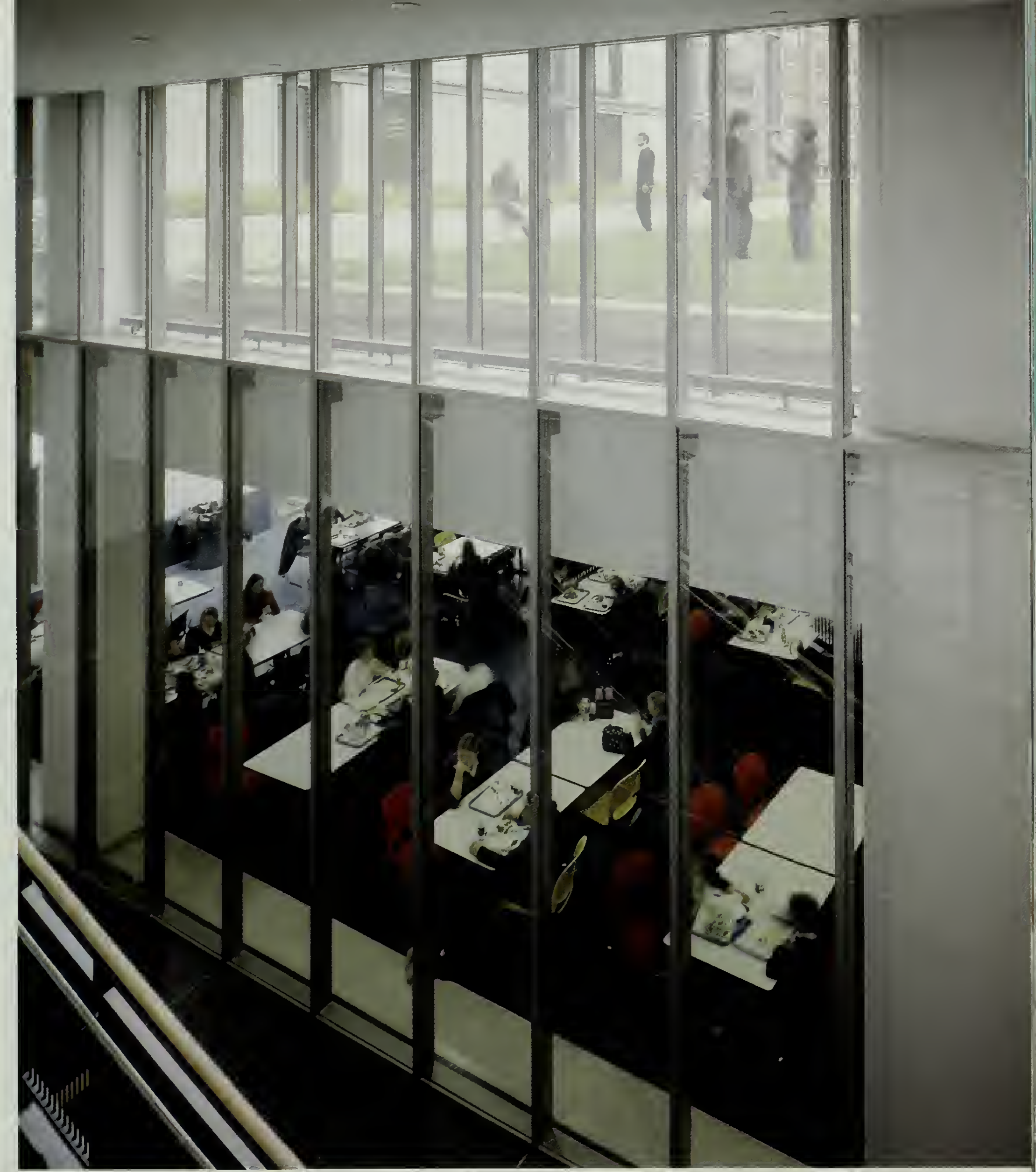


FIRST FLOOR

classrooms on the north side from carefully aligned rooms on the far south.

Tall spaces at the school's "*coeur*," or heart, utilize both vertical and horizontal connectivity to enhance feelings of volume. Here, Polshek maximizes the central area by stacking a simple yet refined courtyard above the commons, a large room vital to maintaining community. Skylights illuminate the commons, which is also bordered by a two-story glass curtain wall. The wall's tall windows establish a visual connection to the adjacent two-level "*grand escalier*," from where they also allow a look into the floating courtyard. Views into the courtyard from around the building not only augment the perception of space, but provide a glimpse of nature and give students an intimate sense of orientation at all times.

The sense of height in the building is amplified by vertical bands of green-tinted channeled glass on the north-facing facades, which draw the eye skyward. These graceful windows, whose reflected light produces a gentle radiance, contribute to a reserved and elegant school entrance that maintains a sleekness true to the Modern form. (Vertical bands of precast concrete and clear windows on the south-facing facades are not nearly as effective in this respect). The interior light produced by the channeled glass is warm and glittering: "Students are mesmerized," explains Polshek principal Susan Rodriguez. Yet somehow, the added light enhances concentration, while the window grid's pattern reflects the rigorous order demanded by French learning, evidenced by classrooms of almost uniform size and shape throughout.

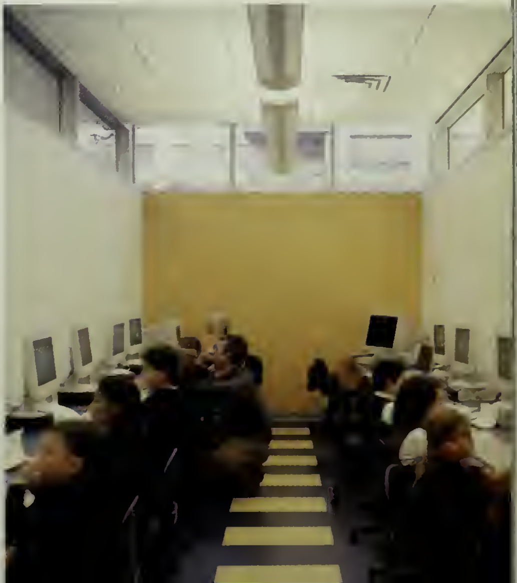


Commentary

While the building has quickly suffered the scratches and knocks expected for an edifice serving more than a thousand youngsters, evidence of its success can be found in the top floor art room, where Upper School teacher Tim Riordan works.

Riordan, a professed claustrophobe, finds his ample new space bathed in natural light (and space, thanks to skylights adjoining the fifth and fourth floors), in contrast to the former school's art rooms located in the basement. He and his students freely express delight. "It's an inspiration just being in the classroom," he says. Most teaching rooms are equally blessed with light, thanks to a hallway layout that puts smaller staff rooms on each tower's inside and larger classrooms on the outside. In such a tight space, the preference for student over staff space makes it easy to see where the school's priorities lie throughout the building. "The students come first here," says Rodriguez. ■

Looking from the *grand escalier* (above), visitors can see the commons (visible below the stairs) and the central courtyard (visible at the top), an elevated plane that appears to float in space, providing a valuable point of spatial reference. A computer room (right) is attached to the library and connected to the building and the street on all sides by windows.



Horace Mann School

San Jose, California

3

MOORE RUBLE YUDELL ARCHITECTS' SMALL URBAN CAMPUS REVIVES A DOWNTOWN AREA AND PROMISES OPPORTUNITY FOR LOCAL FAMILIES.

By John King

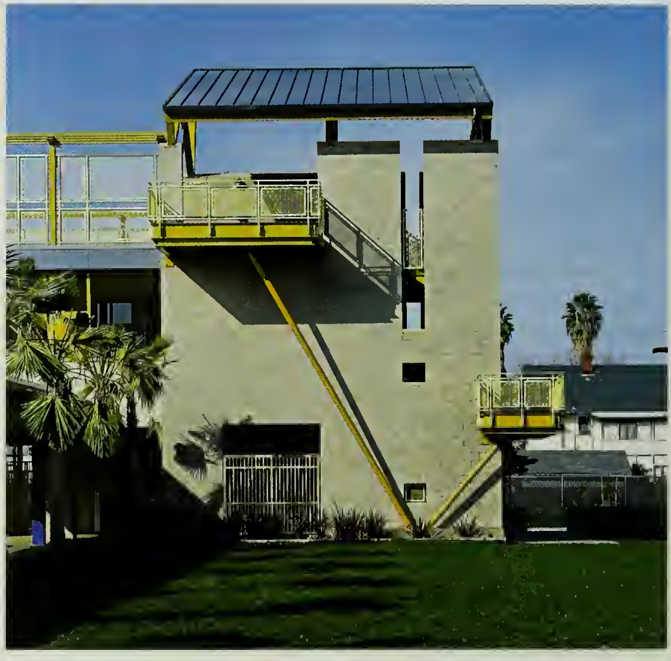
Design architect: *Moore Ruble Yudell Architects & Planners—John Ruble, FAIA, principal in charge; James Mary O'Connor, senior associate in charge; Adam Padua, project manager; Alberto Reano, Martin Saavedra, Lisa Belian, design team*
Executive architect: *BFGC Architects & Planners*
Client: *San Jose Unified School District*
Engineers: *Dasse Design (structural); Capital Engineering (mechanical); Mazzetti Associates (electrical)*
Consultants: *Pamela Burton Associates (landscape); Mazzetti Associates (lighting)*
General contractor: *TBI Construction Manager*

Size: *86,000 square feet*
Cost: *$21 million*

Sources
Curtain wall: *Vistawall*
Aluminum windows: *Moduline*
Glazing: *Pilkington*
Skylights: *Kalwall*
Doors: *Vistawall; Trimtech; Weyerhauser; Cookson*
Furnishings: *N.I.C.*
Lighting: *Gardco; Prescolight; Bryant and Hubbell*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

A school has occupied the corner of Sixth and East Santa Clara Streets in downtown San Jose since 1864, but after a 1909 schoolhouse was demolished in the 1970s, students were consigned to portables. As part of a lawsuit involving desegregation, a local judge ruled that this constituted substandard conditions for the mostly lower-income students, creating the opportunity for design architects Moore Ruble Yudell (MRY) and executive architect BFGC to craft a miniature campus with a strong urban feel.



Program

From the start, public officials wanted more than simply an educational facility for as many as 700 children. The school site is across the street from where builders are erecting a new City Hall designed by Richard Meier, FAIA, so a reborn Horace Mann School sends the message that San Jose's push to revive downtown involves more than civic monuments. "An urban school means we've got kids and families downtown," says Peter Geraghty, of the city's redevelopment agency.

But if two sides of the site are framed by large commercial and civic structures, to the north and east are single-family homes rooted in San Jose's suburban past. Neighborhood residents wanted meeting rooms and park space as well as a school for their children. Sentimental attachments entered in, with many participants at community charrettes eager to save the site's two oldest trees.

For school officials, security was an obvious issue. Teachers asked for small spaces connected to their classrooms where they could work with students requiring special attention. City officials saw the school playing a role as a community center at nights and on weekends.

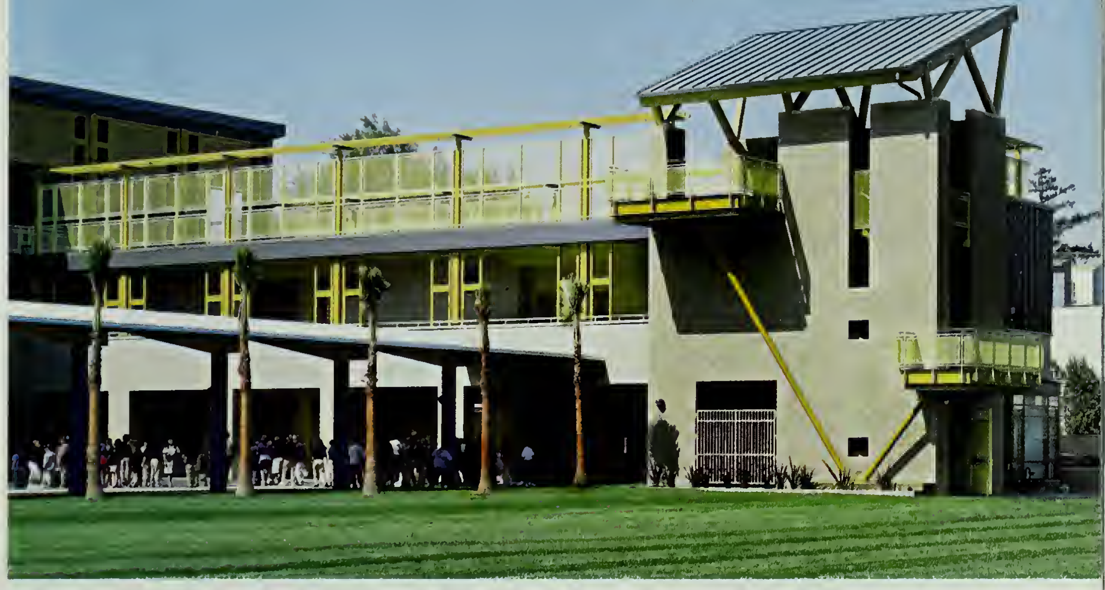
For their part—as might be expected from a team led by a firm that counts early Postmodernist Charles Moore as one of its founders—the architects wanted to make sure that what got built was a fun place to be. "Children deserve a comfortable place," says MRY senior associate James Mary O'Connor. "We wanted to create the opportunity for wonder and exploration."

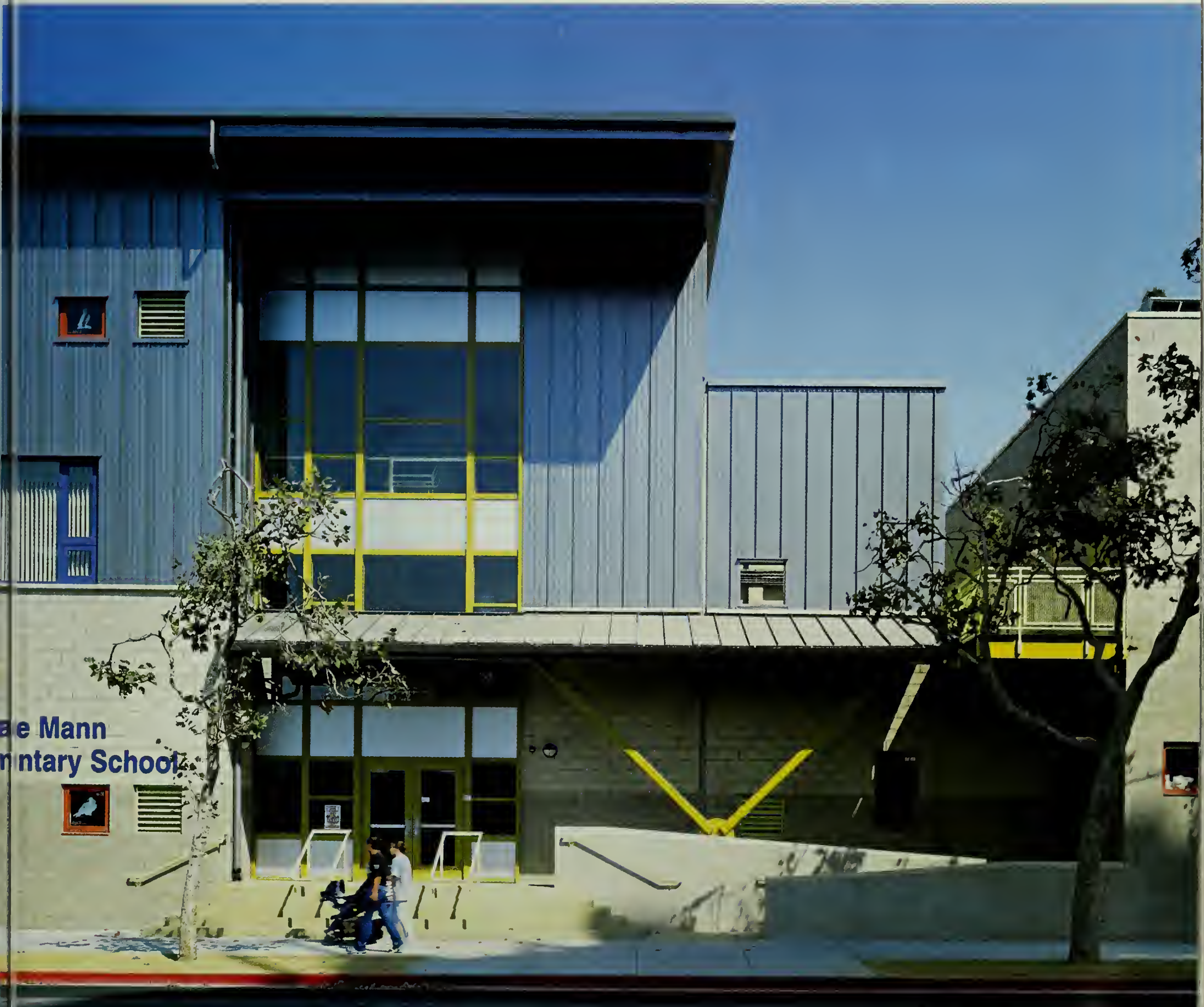
Solution

The press of competing demands led MRY and BFGC to stack three floors of classrooms atop each other along the site's western edge. The materials are simple and

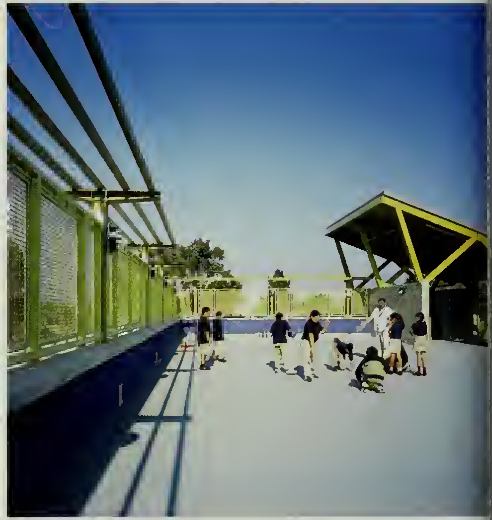
John King is the San Francisco Chronicle's *urban design columnist. He was a finalist for the Pulitzer Prize in Criticism in 2002 and 2003.*

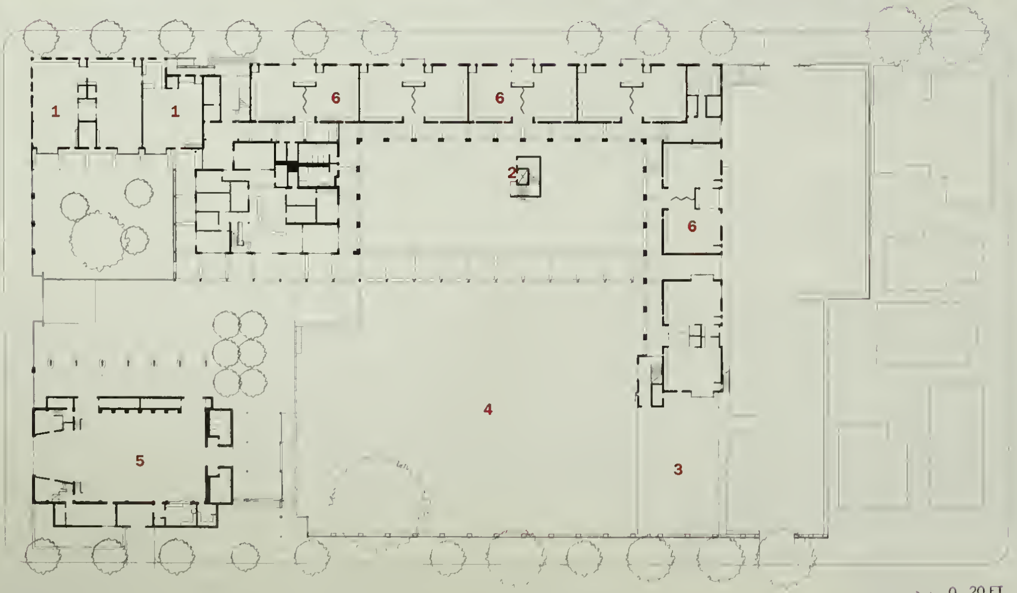
The campus at once mitigates the differences among its varied neighbors and creates a welcoming destination for families. Yellow railings line stairways and upper-floor corridors, and playful square "portholes" are cut into classroom walls.





The gated play areas are sited on the east, with protective angled translucent canopies (below left and right). A well-lit cafeteria doubles as a multipurpose area and performance space (left and opposite, top), and the minicampus features a two-story library (opposite, bottom).





MAIN LEVEL

1. *Library*
2. *Tower*
3. *Proposed day-care center (subsequent phase)*
4. *Grass play area*
5. *Cafeteria, multiuse area, performance space*
6. *Classrooms*

strong: exposed concrete block topped by metal cladding that folds up over the third floor to serve as roofing. What keeps the mix from grimness is a range of supersaturated colors—yellow railings line stairways and the upper-floor corridors, and playful square "portholes" cut into classroom walls at an ideal height for young children.

The classrooms are arranged with kindergarten and first grade on the ground floor, second and third grade above, and fourth and fifth grade on top. A small glassed-in room, perfect for individual study or time outs, joins each pair of classrooms. The library occupies a two-story space, and the school's multipurpose cafeteria facility is a freestanding structure with a full stage and kitchen.

The scale of the school shifts on the eastern side of the site, dropping in height and opening up where it faces the older residential neighborhood, greeting nearby homes with grass and various trees. The vertical approach allowed more than half the site to remain open, and that land is arranged with a care that makes each piece seem larger than it is. Angled translucent canopies stretch over walkways to screen out sun and rain and to serve as a demarcation line between the lawn and the blacktop or play structure.

Commentary

One second-grade teacher tempers her enthusiasm for the new Horace Mann with a comment that the exterior "is a little institutional," and she's right—at a glance, especially from the west, it veers toward the cliché of industrial chic. But the feeling inside the school is welcoming, protective, and oddly intimate, with niches and byways for students to make their own. This school makes no apologies about being in the middle of a city; it glows with the understanding that kids need their own joyful turf. In an age with campus security concerns and financial constraints, Horace Mann doesn't overlook the most basic student needs: a place to be a kid, and a place to realize one's potential. ■

PHOTOGRAPHY: © ART GRAY (TOP AND OPPOSITE, TOP), JOHN EDWARD LINDEN (BOTTOM AND OPPOSITE, BOTTOM)

Abbe Science Center Solebury School

New Hope, Pennsylvania

4

COUNTRY LIVING INSPIRED HILLIER ARCHITECTURE TO EXPERIMENT WITH CEDAR-BARN AND GRAIN-SHED AESTHETICS.

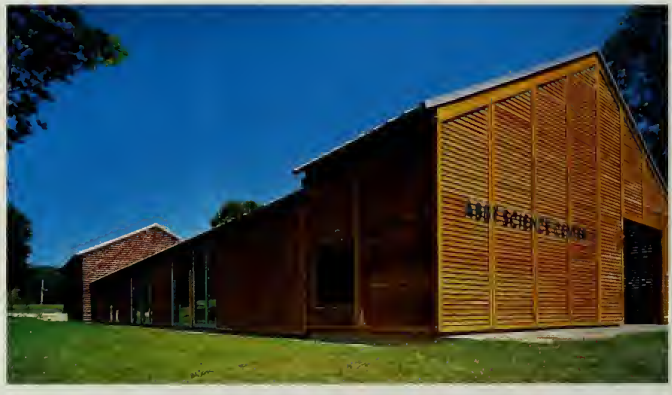
By Jane F. Kolleeny

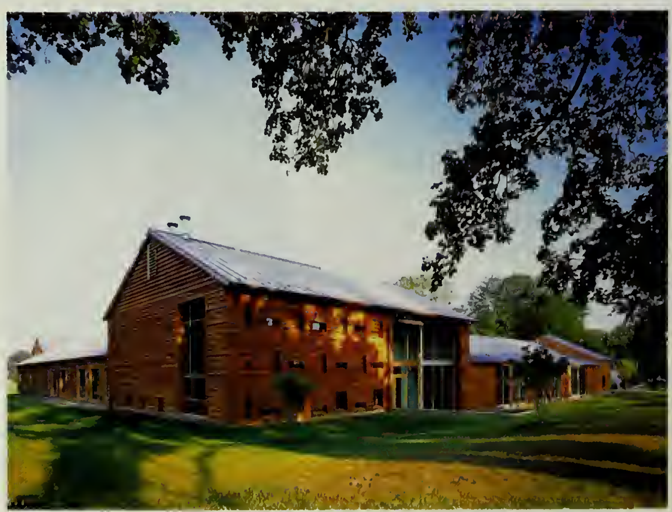
Architect: *Hillier Architecture—Barbara A. Hillier, AIA, principal in charge/project designer; Bradley Walters, designer/project manager; Jose A. Atienza, designer/project architect*
Client: *Solebury School*
Engineers: *Greenman-Pedersen (m/e/p and structural)*
Consultants: *Van Cleef Engineering Associates (landscape); Grenald Waldron Associates (lighting)*
General contractor: *E. Allen Reeves*

Size: *13,200 square feet*
Cost: *$3 million*

Sources
Exterior wood: *K+L Millwork*
Metal roofing: *Atas International*
Glazing: *Alderfer Glass Company*
Entrance doors: *Steelcraft; Mohawk*
Hardware/locks: *Schlage*
Hardware/hinges, pulls: *Hager; Kawneer*
Hardware/cabinets: *Hafele*
Custom cabinets/woodwork: *K + L Woodworking*
Custom benches: *American Millwork*
Interior lighting: *Essential; Ledalite; Lightolier; Insight*
Exterior lighting: *Lumière; Gardco; Omegalux; McPhilben*

For more information on this project, go to Projects at **www.architecturalrecord.com**.





The setting in Buck's County around New Hope, Pennsylvania, couldn't be more romantic. Mossy and weathered stone walls define the boundaries of the fields of the pastoral farms that dominate the area. The Solebury School occupies such a farm, built by a Quaker family in the 18th century, consisting of a barn, farmhouse, and carriage house. The school, which opened in 1925 and purchased its present site the following year, today accommodates about 220 coed students, 64 of whom live on campus, in grades 7–12.

Program

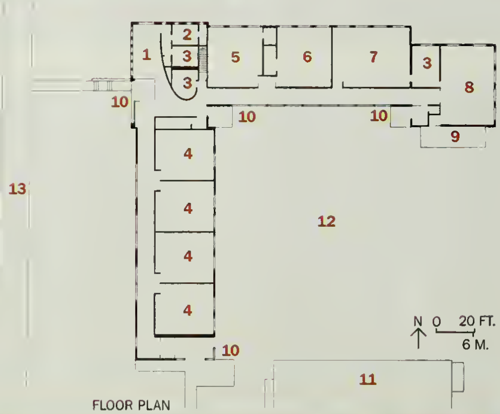
The school desperately needed a science building to replace the tiny one it had. In its land-use plan, Hillier established an appropriate location for the L-shaped building that, together with an existing stucco library, defines a quad. The quad opens to a field that will soon be the site for playing fields and the school's new gym. Both the original wood-frame gym [featured in ARCHITECTURAL RECORD, July 1949, page 128] and the head-master's house were designed by William Hunt, a well-established midcentury architect. Together, the existing farm and these two buildings determined the design context in which subsequent buildings evolved.

Today, headmaster John Brown promotes a casual, interactive style of learning among students, faculty, and staff. A "get your hands dirty, in your face" kind of a guy, he took a course on lab design and visited numerous science facilities to understand the project. "We wanted a noninstitutional building from an architect more strictly known for institutional buildings. We were lucky to get exactly what we wanted."

Designer Barbara Hillier, AIA, wanted to use local materials. Fieldstone proved too expensive, so wood was the logical choice. "The design of the building's cedar skin differentiated it from the uniformity of stucco buildings on campus."

Inspired by the area's ubiquitous grain sheds, the building's long, slender volume and warm red tones lend a barnlike aesthetic. A two-story lounge at the joint of the "L" features a pitched roof and multishaped windows (right and opposite, bottom). Light from the windows dramatizes night views (below). The entrance leads to a long corridor brightened by full-length windows (opposite, top).

The Abbe Science Center consists of four labs, four classrooms, a meeting room, a greenhouse, and long, glazed hallways that double as art galleries. Well-lit labs provide space for experiments and study (left), and a windowed corridor leads to the student lounge (below).



1. *Lounge*
2. *Faculty office*
3. *Restroom*
4. *General classroom*
5. *General science*
6. *Physics*
7. *Chemistry*
8. *Biology*
9. *Greenhouse*
10. *Entrance*
11. *Existing library*
12. *Courtyard*
13. *Campus entry road*

FLOOR PLAN

The Solution

Sited along an east-west axis, it is the first building erected on the 90-acre campus in 50 years. Hillier saw the building as a metaphor for the campus itself: "The authentic rustic character of the existing campus inspired the design of the building." Without being derivative, it complements not only the age and setting of the campus but its modest Quaker origins.

In Hillier's design, a two-story volume at the bend of the otherwise one-story arms of the "L" houses a gathering place for student life. One wall of this unique space opens to an adjacent farm through a large picture window with mullions forming a dynamic, Mondrianlike pattern. The other wall opens to the landscape via narrow, irregular square and rectangular peek-a-boo windows that dice the landscape into succulent bits and stimulate curiosity. At night, the volume appears like a cheerful jack-o-lantern, with an inviting glow.

Barbara Hillier, whose firm is best known for institutional work, loved the professional contrast this project provided for her. Instead of being part of a huge, multiheaded team meeting in boardrooms of large companies, she formed part of a team of three. "Unlike some of the larger projects on which I have worked, the intimate scale of this project afforded the opportunity to leverage the initial design idea and express it consistently throughout the building."

Commentary

The school was wise to develop a land-use plan. Significant site changes resulted as a consequence, and more are planned. By the time the old gym becomes either a student center or performance space, the new gym gets built, and the barn is adapted to performing arts use, the fragmented pieces of the 1700s, mid-20th-century, and more recent buildings will come together. For now, the bubbling humanity and casual air of country life so evident at the Solebury School provide the campus with a sense of unity. ■

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Architectural Technology

Buildings have become more complex; technology keeps evolving. We're changing with the times, too.

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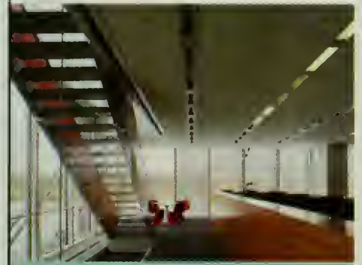


A building mock-up helps The New York Times company see its future (169).

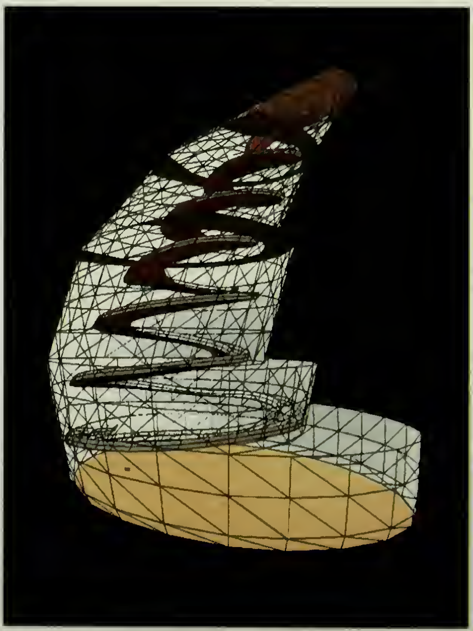
As PV gets popular, designers ponder the look of solar panels (161).

Every fall, RECORD's technology editors produce a list of topics to be covered in the following year's issues—things like building systems, facade design, or new materials. Last year, our research yielded so many new developments in building science that we issued a special supplement, titled *Innovation*, that focused on cutting-edge technologies and research whose effects on architecture are likely to be profound. But even after *Innovation* was published, we found ourselves with more story ideas than space to run them. What to do with the overstock?

The solution was simple: We gave ourselves a makeover. This month, we introduce a revamped quarterly section, Architectural Technology (née Digital Practice in 1998). Four times a year we'll enhance our monthly coverage of building science with extra features, news stories, and other information about how all kinds of technologies—digital and otherwise—are affecting the way buildings are designed, constructed, and operated.

You'll still see stories about computing and architecture, as well as product announcements and the continuing-education feature, this month focusing on acoustics (at right, the atrium of Foster and Partner's London City Hall, which was modeled extensively for acoustic performance). We're trying new things, too. In a section called Zoom In, we take a closer look at a project, a material, or a construction method—any topic worthy of further investigation. For this month's China issue, we showcase a planned new office tower in Shanghai, which is already winning accolades for its green-building and high-tech features.

Today's buildings are very complex, comprising structures, systems, and materials; designing them is an increasingly sophisticated exercise. We believe advances in building science are for the better. We look forward to keeping you posted. *Deborah Snoonian, P.E.*



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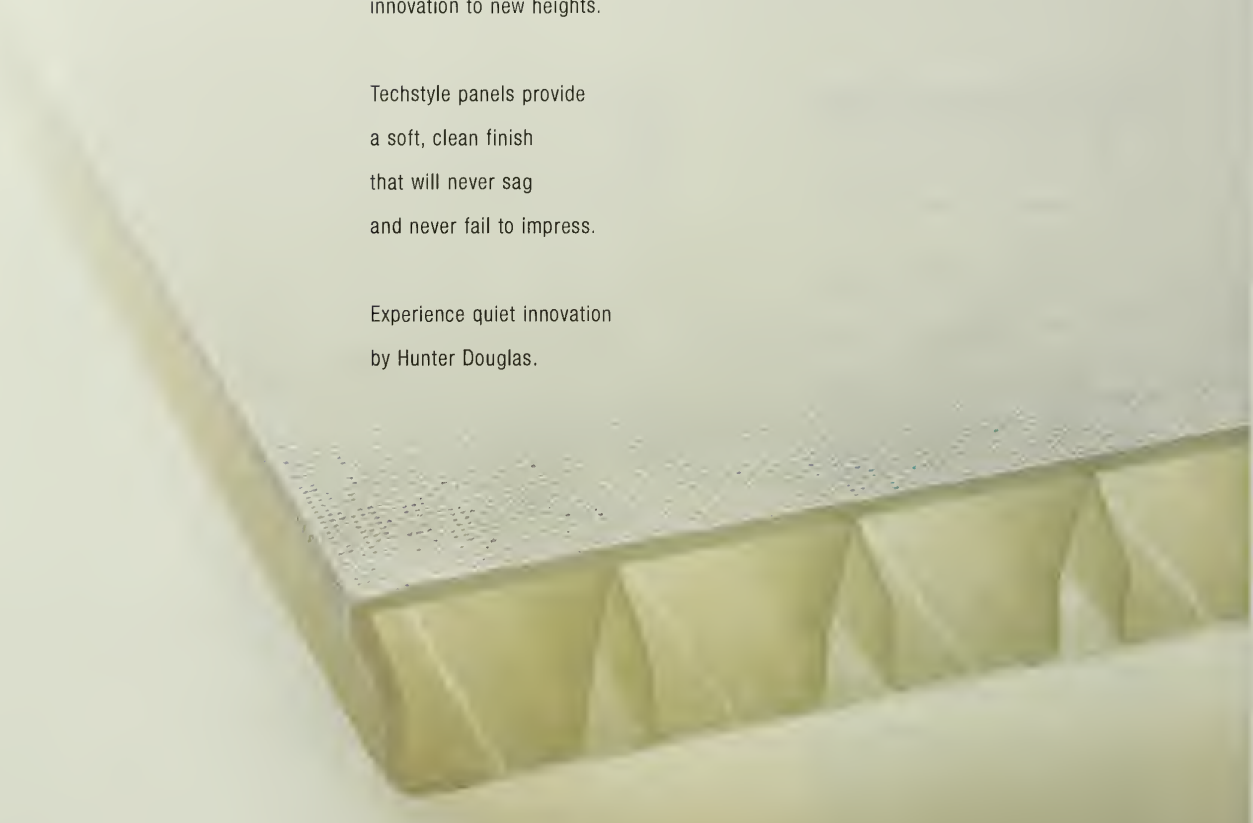

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Hearing Is Believing: ArupAcoustics Has Put the Audio Back Into Acoustics

AURALIZATION BRINGS SOUND INTO THE DESIGN PROCESS FROM THE START

By Sara Hart

Sound is arguably the most elusive and personal of all the human senses. Acoustics is the study of the physical properties of sound, which, like the subjects of other building sciences, can be measured, quantified, and charted. But since sound quality is largely subjective, acoustic engineering, unlike structural and mechanical engineering, for instance, is both a science and an art.

At the upper reaches of acoustic design—concert halls and opera houses—the architecture, comprising the volume, shape, and finishes of a space, is responsible for the performance of the sound. One can simply review the list of factors that determine what makes these building types "good," if not necessarily "great"—quietness, loudness or strength of sound, tone or frequency, reverberation, resonance, definition or clarity, intimacy or presence, liveness, spaciousness, texture, and power—to understand the challenges that confront both architect and engineer.

ArupAcoustics has recreated the sound of the original Neues Gewandhaus in Leipzig, Germany, considered the world's greatest concert hall in its day, but destroyed in 1944.

Throughout the past century, acoustic engineers, armed only with arid calculations and the inimitable geometry of precedents, struggled to persuade clients that they could combine all of these ingredients to create an acoustically exceptional space. The process is not unlike convincing a client to commit to an architectural design by verbally describing what the architect imagines it might look like. It hasn't helped that the goal of many 20th-century concerts halls has been to put architectural originality ahead of acoustic considerations, as the controversy perennially swirling around the acoustics at Lincoln Center's Avery Fisher Hall attests. As world-renowned authority Leo Beranek states in his preface to *Concert Halls and Opera Houses: Music, Acoustics, and Architecture* (New York: Springer-Verlag, 1996 and 2004), clients get iconic buildings and then "hope that the halls have excellent sound."

Although historically, acoustic engineers have come to the design process at a disadvantage, there are now electroacoustic data-gathering and computing technologies that graphically display the acoustic performance of sounds from their point of origin until they decay completely. Both 2D and 3D ray-tracing techniques (also known as geometric acoustics) are accurate, albeit preliminary, ways of determining the path that sound waves will take from a source to a receiver. Using these tools, the engineer can effectively communicate the acoustic consequences of a design to the architect, who is, by training, predisposed to understand the phenomena when it's presented visually.

Two-dimensional ray tracing uses bitmap images to create a computer model. This technique can be used very early in a project to analyze the effect of shaping, geometry, and placement of acoustic materials to achieve the desired response. Three-dimensional ray tracing is clearly superior to 2D, because the engineer can quickly determine more about how sound will reverberate and reflect off of a room's surfaces in 3D. Sound "particles"—representations of the total energy produced by the sound source—are sent in all directions. The engineer can determine

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/AIA Continuing Education article. To receive credit, turn to page 158 and follow the instructions. For additional opportunities to receive Continuing Education credits, and to learn about important changes in AIA Continuing Education guidelines, go to www.architecturalrecord.com, under Resources, then click on Continuing Education.

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Explain acoustic ray tracing.*
2. *Describe an impulse response.*

For this story and more continuing education, as well as links to sources, white papers, and products, go to ***www.architecturalrecord.com***.

In the SoundLab (below), Arup Acoustics engineer Neil Woodger describes the special sound created in the alcoves of a prototype design for the Recital Hall at the Constellation Center in Boston (top right), while colleague Raj Patel listens to the effects. Using a benchmarking technique know as auralization, the engineers and architects manipulated the design of the Recital Hall until they achieved the clarity and envelopment of the Grosse Musikvereinssaal (1870) in Vienna (bottom right).

the preliminary locations of sound-absorbing, -reflecting, or -diffusing surfaces and study the effect they have in a space.

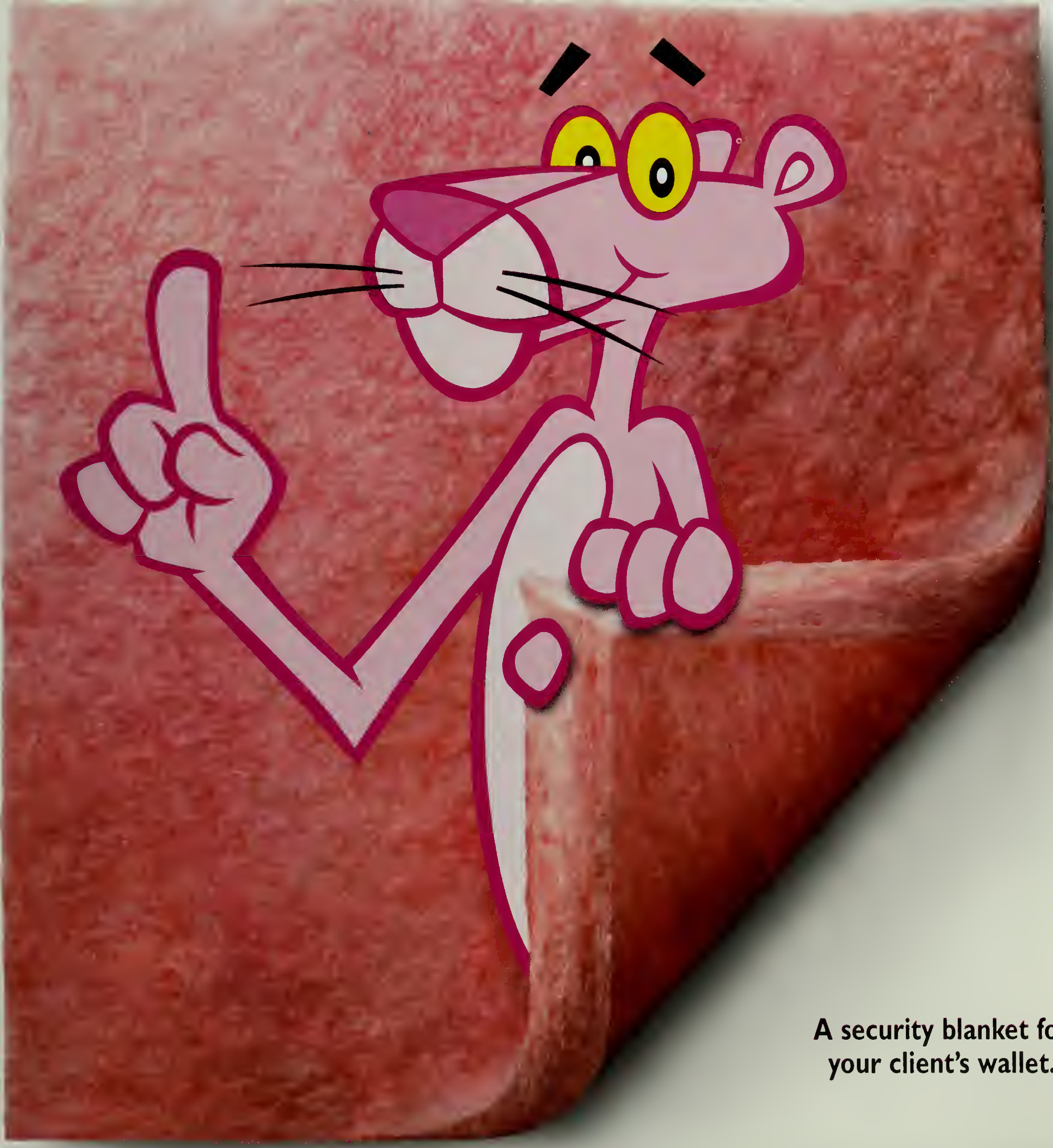
The acousticians in the New York office of the international engineering firm Arup used a proprietary version of 3D visualization to model the sound-wave propagation for the Greater London Authority (GLA) Council Chamber, designed by Foster and Partners [RECORD, February 2003, page 110]. As the model progressions show (page 152), the architects and the engineers collaborated to create multiple iterations of the form until all the acoustic goals were achieved.

THE RAY-TRACING TECHNIQUE IS VERY USEFUL IN UNDERSTANDING HOW THE SOUND ENERGY FLOWS AND MOVES ABOUT COMPLICATED SPACES.

The results are based on initial AutoCAD drawings from the architect and create a dramatic visualization of the acoustic characteristics of the space. Three-dimensional ray-tracing routines use visualization tools and techniques to examine the early region of sound propagation within a space. The properties of sound are evaluated by looking at reflections from room surfaces. This technique is very useful in understanding how the sound energy flows and moves about complicated spaces. It can be used to identify focusing and echoes as well as the effectiveness of absorption placement.

And yet, although the process was successful, all parties would agree that "seeing" sound is not the same as listening to it. Patel explains that our subjective impression of the reflections is dependent on the time of arrival and the level relative to the initial sound source. "2D and 3D ray-tracing techniques can be used to analyze the timing of arrivals, by measuring the distance they travel, knowing the speed of sound is constant in air, and applying the simple equation: time = distance ÷ speed," says Patel. "However, it is more difficult to calculate the relative level of these reflections and also, in most rooms, there are a lot of reflections to analyze."

He explains, "Ray tracing allows preliminary identification of key surfaces that result in reflections arriving 'late' at a receiver. But it is more difficult and time-consuming to identify the influence these reflections have on our subjective impression of the sound in a room. To be



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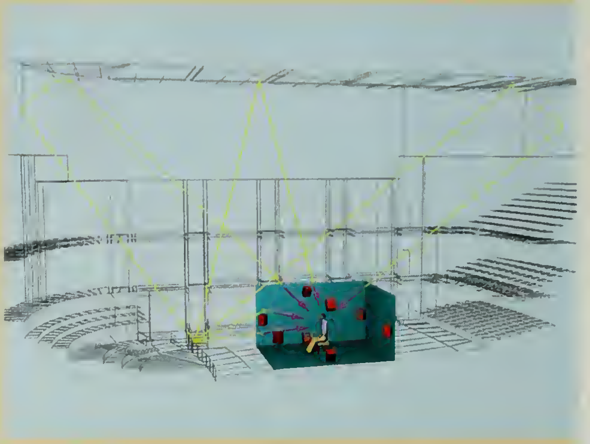
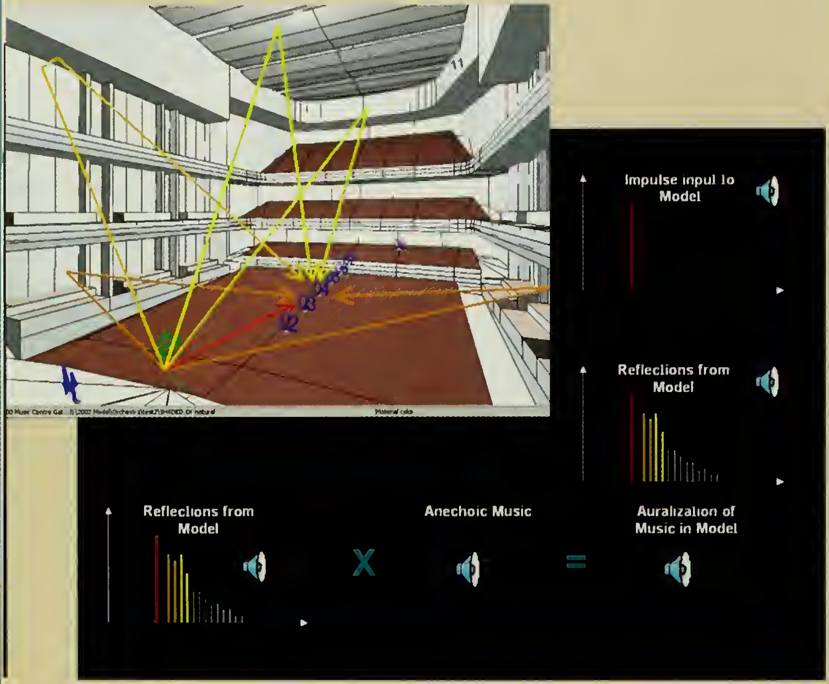
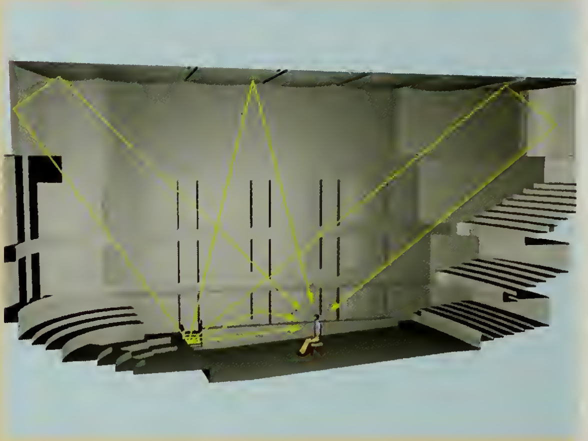
The computer model of a concert hall (below) is used to calculate the transfer function between source and receiver. The impulse response is then multiplied with the anechoic music (recorded with no sound reflections) to produce the auralization of the hall. After the reflection sequence of a real concert hall or model is captured (top right), the reflection sequence is reproduced inside the SoundLab (bottom right) using a 3D sound system. Anechoic music is combined with the impulse, allowing the music to be heard as it would be in the original hall. The design can be changed immediately to assess acoustic differences.







able to know this, you have to be able to 'listen' to what they sound like."

As principal Neill Woodger laments, "Communication [of the acoustic strategy] is difficult with only numbers and graphs as tools [even sophisticated computer modeling], because, when all is said and done, only hearing is believing."

Auralization

Imagine listening to the rich symphonic sounds of Beethoven's *Egmont Overture* in the acoustic perfection of the Grosser Musikvereinssaal in Vienna. Then, one moment later, you're hearing the same piece in the Concertgebouw in Amsterdam. The magical transport from Austria to the Netherlands was actually a virtual one, yet as authentic as the real thing. There is a point to listening to two halls side by side, because even the world's greatest concert halls have different acoustic signatures. And it's the signature that carries the intellectual and emotional impact.

Three years ago, Woodger, Patel, and Alban Bassuet set out to put the listening back into acoustics. They designed and specified a space in the Arup New York office—an acoustically neutral environment, with special attention given to room dimensions and recording-studio-quality finishes, to create the perfect environment for listening to musical sounds and specifically identifying and understanding the acoustic nuances of architectural spaces. (It is not incidental that many of today's young acousticians, like Woodger and Patel, are also classically trained musicians. They have sophisticated "ears" and are able to infuse the physics of sound with intuition and knowledge of the performance in architectural space. Until 15 or 20 years ago, engineers came to the field of acoustics through the back door, says Woodger, by which he means they drifted into it from other areas of engineering or architecture. Nowadays, students can major in acoustics, a specialty that seems to draw those with both musical talent and an engineering aptitude.)

ArupSoundLab, as it is called, represents an evolutionary advance in acoustic design. From comparison of 2D architectural plans and sections to 2D and 3D acoustic visualization, architects and clients can now include the sensual listening experience of auralization to actually hear how their buildings will sound. According to Woodger, "auralization is the ability to render accurately the sound of a space, whether built or not, while immersed in a controlled listening environment."

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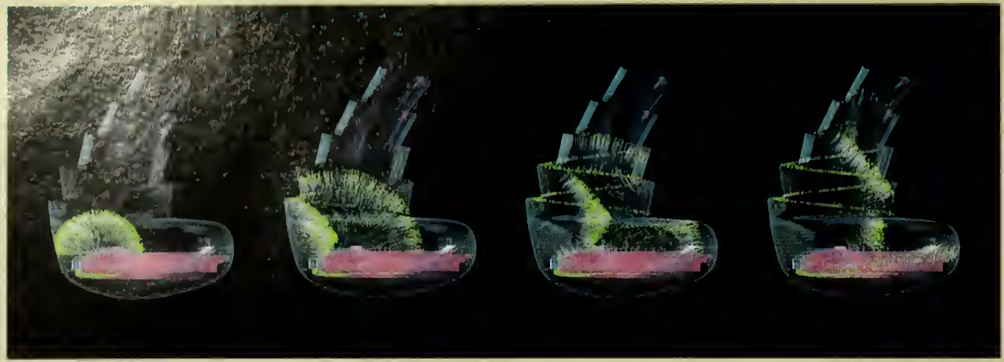

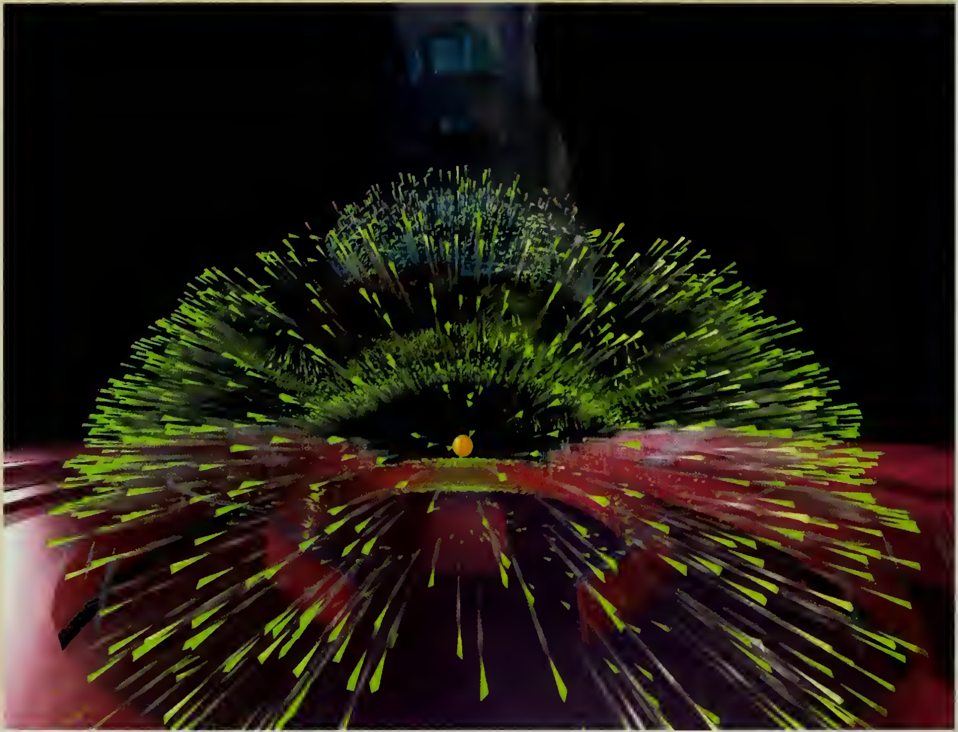

These stills from a 3D animation of the sound propagation within the Greater London Authority (GLA) Council Chamber were produced using ArupAcoustics' in-house 3D visualization technique. The images are based on the initial AutoCAD drawings from Foster and Partners. The tool was used to develop the shape of the sound-absorbing spiral surfaces.

The client who gave momentum to this project is Glenn KnicKrehm, the force behind Constellation Center, a new performing arts center in Boston. Each of four separate halls, designed by ArupAcoustics with Cambridge-based Stubbins Associates, hosts specific programs in early and Baroque music, Baroque opera, cinema, and experimental works. KnicKrehm's extensive knowledge of the prominent concert halls that influenced the development of these musical forms in Europe led ArupAcoustics engineers to measure the acoustic signatures of more than 50 halls in the United Kingdom, the Netherlands, Italy, Austria, France, and Germany.

THE "IMPULSE RESPONSE" IS THAT ACOUSTIC SIGNATURE, AS UNIQUE TO EVERY SPACE AS A FINGERPRINT.

In the past, benchmarking of [illegible] hall design was achieved by comparing the physical dim[illegible] and materials or designing to achieve the same measurable ac[illegible] parameters such as the commonly used Reverberation Time, to achie[illegible] similar sound. This was a one-dimensional approach to a multidimensional experience, and reverberation time does not adequately describe the behavior of sound in three dimensions. Inevitably, small changes in geometry and materials were often made, and (until now) there has been no guarantee that the new space will have any aural relationship to the reference space.

The process of collecting the acoustic signatures has allowed ArupAcoustics to calibrate measurements in the real halls against computer models they built of the same halls. The aim was to create three-dimensional and audible benchmarking.

Engineers in the room being measured create an impulsive sound (a short, sharp sound similar to a gun shot) and play it through an omnidirectional loudspeaker. The impulse is recorded at the listener's position to get the original impulse and all the room reflections. This "impulse response," as it is called, is that acoustic signature, which is as unique to every space as a fingerprint. The response is captured using a 3D SoundField microphone, which is actually four microphones in one, allowing individual analysis of reflection information in the X (front-to-back), Y (side-to-side), Z (floor-to-ceiling), and W (X, Y, Z simultaneously) axes.

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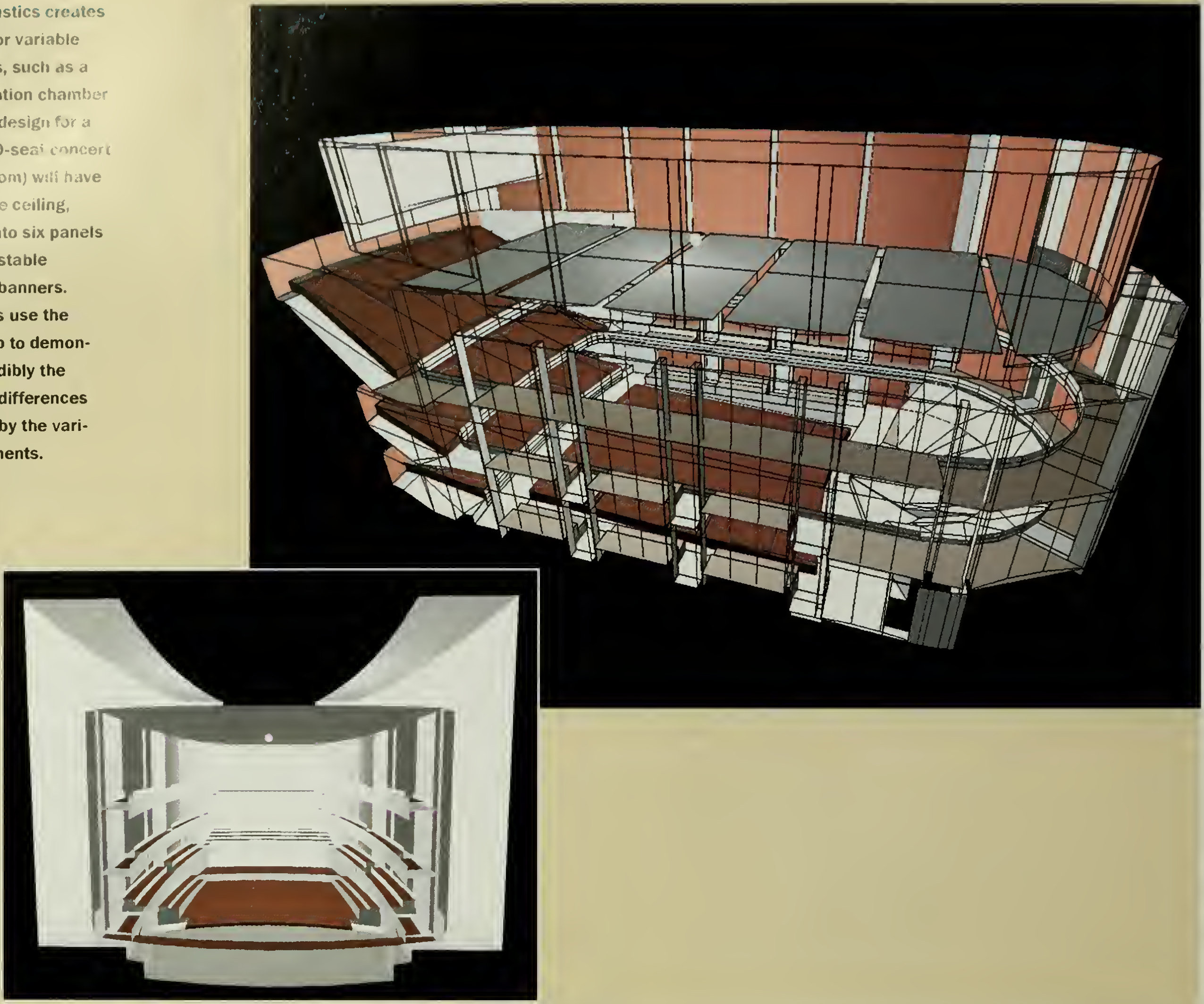

ArupAcoustics creates studies for variable acoustics, such as a reverberation chamber (right). A design for a new 1,770-seat concert hall (bottom) will have a movable ceiling, divided into six panels with adjustable acoustic banners. Engineers use the SoundLab to demonstrate audibly the acoustic differences provided by the variable elements.

Back at the SoundLab, a 3D sound system replicates in space and time the measured impulse response. Once the impulse response is captured, it can then be combined with anechoically recorded (without echoes or reverberations) speech or music in a process known as "convolution." Exactly the same process is conducted with a computer model.

Why anechoic? Obviously, anechoic spaces are completely free of sound reflections (no bouncing off the walls, so to speak). When a musician is recorded in a nonanechoic space, the recording picks up the sound of the instrument plus all the reflections from the room surfaces. The music used in the convolution must be anechoic, or the output in the lab will be colored by the reflections within the original recording.

ANECHOIC SPACES ARE COMPLETELY FREE OF SOUND REFLECTIONS (NO BOUNCING OFF THE WALLS, SO TO SPEAK).

The output of the "convolution" is audible, and the sound of a space will change as the architectural form changes or the materials are substituted. While the same piece of music plays continually, you can change the acoustic signature to any desired room and listen to subtle changes in acoustic character, comparing the great halls of the world to a new, yet-to-be-realized design. The process of 3D benchmarking is complete.

In the case of the Constellation Center, KnicKrehm wanted to know which of the four halls would be better to showcase Baroque opera. He dispatched a "golden ears panel" of musicians and experts to the SoundLab to evaluate arias and recitative in both the recital hall and the theater. The aural studies demonstrated that Baroque opera in the recital hall would require major revisions to the design, while the theater would be more compatible with this type of use, with only minor revisions.

Outside the (music) box

Only a handful of architects get the opportunity to design new concert halls or opera houses. However, the technology of auralization can be applied to most buildings. For instance, in both residential and commercial curtain-wall design, auralization studies can help a client decide whether more money should be spent to make the fenestration more

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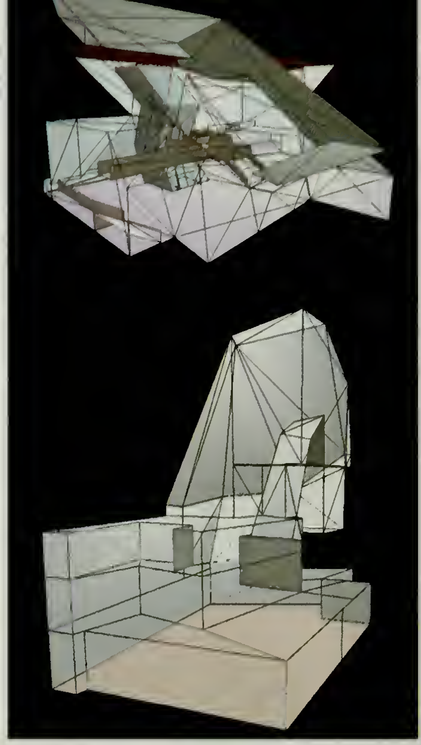
impervious to sound infiltration, or if the existing design provides sufficient protection.

ArupAcoustics is busy engineering the acoustics for many projects—stadiums such as Herzog & de Meuron's scheme for the 2008 Beijing Olympic Stadium (page 100) and Irata Isozaki's 2006 Olympic Torino Ice Hockey Arena; sports arenas; and schools. It is especially useful for complex geometries, such as the Lulu Chow Wang Campus Center at Wellesley College by Mack Scoggins Merrill Elam (bottom right); and museums and galleries, such as the Akron Art Museum by Coop Himmelb(l)au (top right).

AURALIZATION PLAYS A SIGNIFICANT ROLE IN EVALUATING WHERE THE MONEY SHOULD GO IN A PROJECT.

In the past, composers often wrote music with a particular space in mind, so there was an intimate relationship between the music and the architecture. Today we live in an era when institutional and cultural buildings must be all things to all users, and as a result acoustic quality and the art of listening have suffered. Now, however, with musician-engineers putting science and technology in the service of art, buildings of the 21st century might be as highly evolved acoustically as those of more than a century ago when the bond of sound and space formed the soul of music. ■



The auralization process is useful in complex geometrical spaces, as it was for the design of the Akron Art Museum (top) by Coop Himmelb(l)au and the Lulu Chow Wang Campus Center (bottom) at Wellesley College. The latter must perform acoustically for choir, chamber, and disco music, lectures, and theater. By creating auralization studies of the space with different acoustic options, event sound was analyzed with the architect. Key members of the faculty went to the StudioLab to listen and agreed on a final design approach.

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Hearing Is Believing: ArupAcoustics Has Put the Audio Back Into Acoustics" using the learning objectives provided.
- Complete the questions below, then fill in your answers (page 222).
- Fill out and submit the AIA/CES education reporting form (page 222) or download the form at www.architecturalrecord.com to receive one AIA learning unit.

QUESTIONS

1. Representations of the total energy produced by a sound source is called what?
a. Particles
b. 2D ray tracing
c. 3D ray tracing
d. Reflection

2. Two-dimensional ray tracing is different from 3D ray tracing because it uses which to create a computer model?
a. Particles
b. Bitmaps
c. Absorbing surfaces
d. Reflecting surfaces

3. Ray tracing evaluates sound by looking at which?
a. Absorption
b. Diffusion
c. Reflection
d. Particles

4. Our subjective impression of sound reflections is dependent on which acoustic conditions?
a. Time of arrival
b. Sound level relative to initial sound source
c. Direction and source of sound
d. Both a and b

5. Ray tracing is useful in the understanding and the investigation of all these conditions except which?
a. Convolution of sound
b. Identification of focusing and echoes
c. How energy flows and moves in complicated spaces
d. Identification of the effectiveness of absorption placement

6. A concert hall's intellectual and emotional impact are part of which acoustic attribute?
a. Communication
b. Signature
c. Impression
d. Convolution

7. In the anechoic chamber, all surfaces perform what function?
a. Absorb
b. Reflect
c. Diffuse
d. Echo

8. The process of collecting data from reference halls using SoundField technology is called what?
a. Recording numerical data
b. Setting parameters
c. Benchmarking
d. Collecting responses

9. Every concert hall or opera house has its own acoustic signature, which consists of which?
a. Original impulse only
b. Original impulse plus all the room reflections
c. Sound reflections only
d. None of the above

10. The process of combining the impulse response with anechoically recorded music or sounds is known as which?
a. Nonanechoic
b. Convolution
c. Audible
d. Collecting signatures

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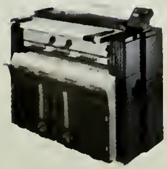

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In the U.S., architects are ramping up the design power of photovoltaics

SOLAR POWER IS ON THE RISE, AND DESIGNERS ARE USING IT TO MAKE A STATEMENT

Gregory Kiss and Nicholas Goldsmith, FAIA, designed structures using PV panels for *Under the Sun*, an exhibition about solar power mounted at the Cooper-Hewitt, National Design Museum in 1998. Since that time, solar power's popularity has increased, thanks to rising demand for green-building techniques.

By Peter Fairley

Solar power got a shot in the arm last year when an off-the-grid housing complex in Santa Monica won a merit award from the AIA Los Angeles chapter. Berlin architect and jury member Matthias Sauerbruch said that Colorado Court, by Pugh + Scarpa, was the first architectural application of photovoltaic (PV) panels that actually looked good. A national architectural jury agreed with him. Colorado Court went on to garner a 2003 AIA Honor Award [RECORD, May 2003, page 135], and soon the design world buzzed with admiration for its five-story-high walls of brilliant blue PV panels.

Ever since its nascent years, solar power has gotten a bad rap. In the 1970s and 1980s, clunky-looking (and often poor-performing) panels were tacked onto buildings as little more than an afterthought. The design-conscious railed against them; manufacturers responded by developing building-integrated PV products, which sought to disguise solar-powered materials in facades or roofs. But projects like Colorado Court and The Solaire, a new high-rise in Manhattan's Battery Park City, do just the opposite: They embrace, even celebrate, the look of conventional PV technology. In the process, they're defining a new aesthetic for green buildings—one that's well-established in Europe but still struggling for life in the U.S.

Gaining ground and making a statement

The use of solar power is growing rapidly. PV installations in the U.S. jumped 53 percent in 2002 and rose another 30 to 40 percent last year, according to the Solar Energy Industries Association. Not surprisingly, economics is driving demand. States like California are offering tax rebates and other incentives for using solar power. When combined with high energy prices, the payback period for investment in PV can be as little as four years.

PV use seems set to keep growing, with the increasing popularity of building green fostered by the U.S. Green Building Council and their LEED rating system. Solar power is worth one LEED credit toward certification—but perhaps more critically, PVs are among the most observable environmental amenities that can be designed into a building. For architects, making PV technology stand out puts their projects on the map with the public. Rafael Pelli, AIA, partner with New York–based Cesar Pelli and Associates, says this was one reason he highlighted the solar-power system in designing The Solaire's facade. "We were actively seeking some expression in the building that spoke about

Peter Fairley writes about energy, technology, and the environment from his home in Victoria, British Columbia. He also teaches journalism at the University of Victoria. This is his first contribution to RECORD.

its intent," says Pelli. "The photovoltaics were visible and immediately identifiable as something different."

Solar panels adorn the upper reaches of The Solaire, like Manhattan's first solar high-rise at 4 Times Square [RECORD, March 2000, page 90]. But The Solaire also features a 28-foot-wide column of PV panels, starting above the southwest-facing front entrance and rising 13 floors. This feature screams "renewable power," whereas 4 Times Square's thin-film panels are indistinguishable from tinted glass. Pelli says the panels expand the design to "argue for a different kind of building expression" while also meeting the strict guidelines for Battery Park City, which specify glass and brick construction. The key, he says, is the pieced-together appearance of the cells. "They have a visual quality all their own, and yet they are very sympathetic, with the fine-grained texture of a brick wall. The monocrystalline cells break down into a series of pieces, so they feel like very modular units making up this larger field," he says.

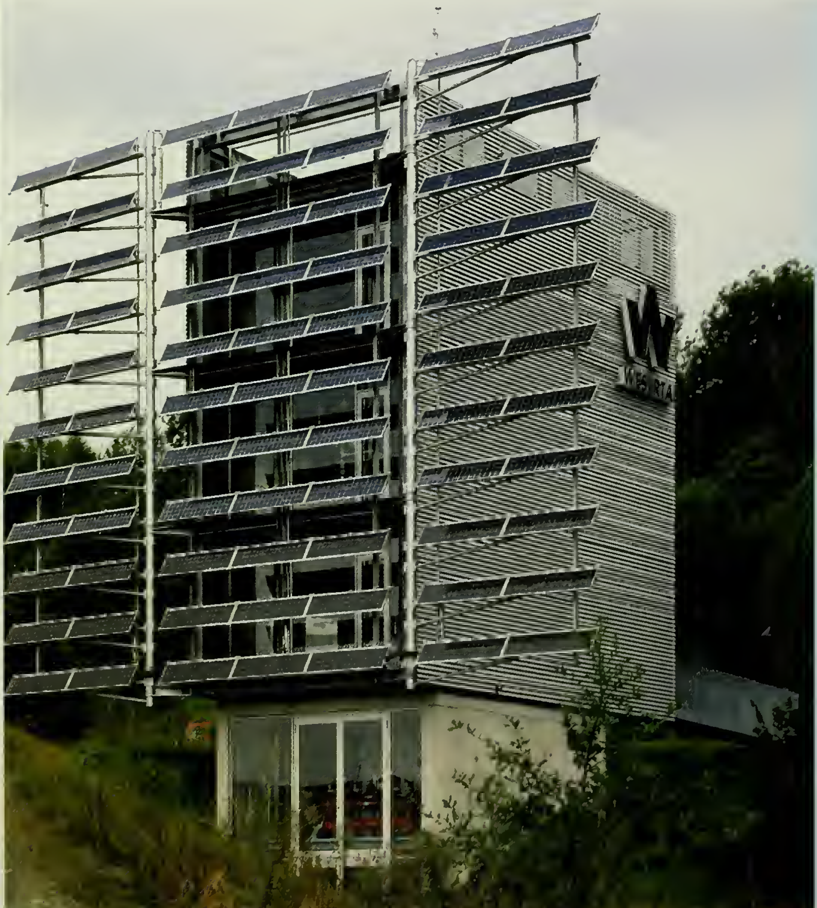
Like The Solaire, Colorado Court is anything but shy about its photovoltaics. Pugh + Scarpa partner Lawrence Scarpa, AIA, says that his firm views sustainability as a design tool. At Colorado Court, power production was, in a sense, only part of the justification for using PVs on the building. "I thought it was crucial to making the building look good, and the only way we could sell that was if it had a function," says Scarpa.

PV is making a mark on infrastructure projects, too. A 1-megawatt installation for a car-park canopy at Naval Base Coronado in San Diego employs 3,000 blue crystalline PV panels, bathing the vehicles below in a mix of shade and light. The structure was installed by Berkeley, California–based PowerLight. Tom Dinwoodie, the engineer-turned-architect who founded PowerLight, says the company aimed to match the airy feel of European train stations, hoping that visitors will step out of their cars and enjoy the view. As with Colorado Court's solar walls and awnings, natural light filters around the PV cells, providing enough illumination underneath to read by while protecting commuters and cars from blazing sunlight. "It's a fabulous effect," says Dinwoodie.

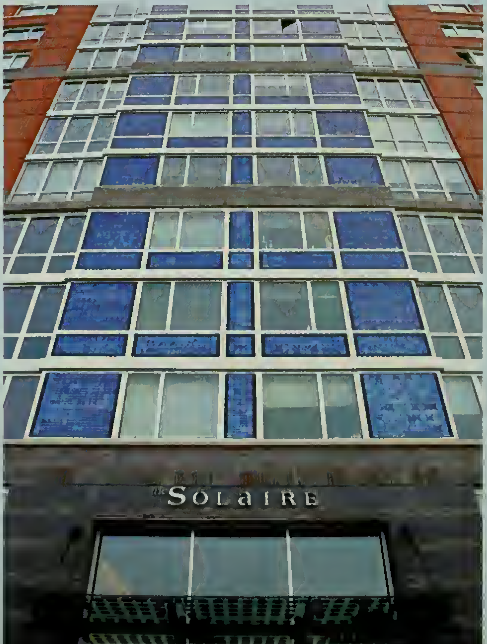
San Francisco–based 450 Architects brought this shadow-and-light effect indoors when they designed the Argonne Child Development Center in San Francisco. The firm used 17 semitransparent solar panels to build three south-facing skylights in the school's north-facing roof. Last year, the school was honored as one of AIA's Top Ten Green projects [RECORD, May 2003, page 54].

CRYSTALLINE PV CELLS HAVE "A VISUAL QUALITY ALL THEIR OWN," SAYS RAFAEL PELLI, AIA, THAT HARMONIZES WITH BRICK AND OTHER BUILDING MATERIALS.

Even for installations on commercial roofs, where aesthetics are a secondary concern, PV is considered a huge improvement on what came beforehand. Solar panels backed by insulation are sprouting up atop big-box retail stores, manufacturing plants, and office buildings in California. A visual makeover is the inevitable by-product of this trend,



Recent office buildings in Germany (left and opposite, bottom left) demonstrate a PV aesthetic that's just beginning to emerge in the U.S. At The Solaire in Manhattan's Battery Park City (below), solar panels are built into the facade above the entrance, the most visible of the project's environmental features. Visitors to the Domaine Carneros Winery in Napa Valley can glimpse its rooftop PV array from surrounding hills (opposite, top left).



Dinwoodie says. "We tile roofs with these blue sparkling [PV] tiles. What was there before? Usually a gravel or a bituminous roof with puddles of mud." Though many rooftop systems are invisible to all but air travelers, some are distinctly high-profile. In San Francisco, a 675-kW system atop the Moscone Convention Center is a magnificent blue field visible from downtown high-rises. Then there's the shimmering solar rooftop of Napa Valley winery Domaine Carneros, which visitors can admire from the surrounding vine-covered hills. "It's like the sea on this rooftop, and then you have the green from the hills. The rows of solar arrays bleed into the rows of the vineyard," says Dinwoodie.

It's tough being beautiful

For architects who want to use PV as a visual element, finding the right material for each project can be challenging—especially when government funds or grants require projects to use locally sourced materials. Pelli's firm originally designed The Solaire with a black stripe of PVs, but had to purchase the panels within 500 miles of Manhattan to qualify for New York State's green building tax credit. As a result, blue panels were used instead of black ones. (Pelli says he has no regrets: "I think they're more beautiful, more visually interesting as a material.") Pugh + Scarpa had to make last-minute adjustments to the design of Colorado Court when PV panel manufacturer BP Solar, a subsidiary of the oil and gas giant, bought out their supplier. Scarpa says they convinced BP Solar to custom-manufacture panels with a clear backing to let the light shine through, but the design still had to accommodate BP's panel size. Public funds used for the project made it impossible for Scarpa to turn to Japanese or European suppliers, which make a wider range of panel sizes, he says. In theory, as more states and owners in the U.S. adopt PV technology, local manufacturers will offer more choices in the coming years.

Another challenge in making PV installations look right is educating contractors. Scarpa wasn't fully satisfied with the installation at Colorado Court, noting that the electrical, plumbing, and structural subcontractors—who'd never put in a solar system before—didn't understand that the panels were part of the visual aesthetic of the building. As a result, he says, the placement of equipment such as electrical conduits and plumbing lines was not carefully considered. Scarpa recommends that architects require detailed engineering drawings of installation locations and procedures as part of the bid package, as well as preconstruction meetings with contractors to review the system and answer questions.

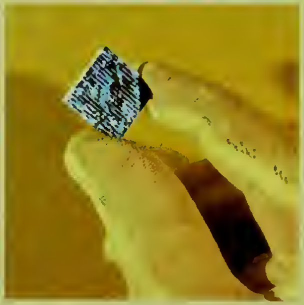
The disappearing act

The ultimate challenge to integrating PV technology is accommodating those customers, or neighbors, who are holdouts against the renewable-power look. Solar-power NIMBYs are often particularly vocal in residential areas. In California, the state's legislative assembly saw fit to expand the state's Solar Rights Act last year, seeking to quash antisolar building codes and bylaws across the state that were largely put in place because of aesthetic concerns. Even in San Francisco, a city that has embraced solar power, residential architects must proceed with caution

PV technology: The rigid and the flexible

Photovoltaic cells are composed of semiconducting material, usually silicon, which makes them capable of producing electricity from sunlight. Two technologies for making cells offer different looks and applications as they vie for space on rooftops, facades, and shading structures.

Wafer (or cell) technology
Crystalline cells, the most widely used technology on the market, are grown in long cylinders and sliced into wafers. *Polycrystalline* cells are either drawn in sheets or made into ingots and then cut into squares. They're cheaper but produce less power than crystalline cells.



Thin-film technology
Thin-film cells are made by depositing layers of semiconductive material onto a glass, metal, or plastic surface. They're less rigid than crystalline cells and even cheaper than polycrystalline, but less efficient than either.

to avoid costly, time-consuming disputes with neighbors. Richard Parker, AIA, a partner at 150 Architects, says 90 percent of his firm's projects last year included PV, but not all are visible from the street. For example, he designed a parapet to hide a solar installation atop a home in Noe Valley that is surrounded by Arts-and-Crafts-style houses. "We're going to be generating a ton of power, and you're not even going to be able to see it," says Parker.

Another solution is to switch to products that incorporate PVs within building materials. This is where thin-film products come in. When viewed from outside, thin films have a uniform color, usually black or gray; they can also be produced on flexible substrates like plastic, making them easier to apply to metal roofing and fiberglass-reinforced tiles. Architects agree that opaque, thin-film PV panels have a role to play in some buildings. "Where you have an all-glass building and you're paying for the glass already, I think there's a logic to [using] it," says Pelli.

AS DEMAND FOR SOLAR POWER RISES, DOMESTIC MANUFACTURERS WILL BEGIN OFFERING MORE OPTIONS FOR SIZES AND COLORS OF PV CELLS.

What thin films offer in stealth is offset, unfortunately, in efficiency. They produce as little as one-third the power as conventional crystalline PV cells—a serious liability given that their installed costs are only marginally lower than that of crystalline cells. Still, especially for large roof systems, their economics can make sense.

A leading proponent of using thin-film technology atop buildings is Southern California Roofing, the nation's fifth-largest roofer. In 2003, two of the firm's principals established a separate start-up company called Solar Integrated Technologies in Los Angeles, to bond charcoal-colored thin-film PV to metal and membrane roofing. The new product is both a roof and a power-generating system. "We turn a liability into a producing asset," says Richard Schoen, FAIA, executive vice president for both firms who teaches sustainable architecture and community planning at UCLA. "We aren't on the roof," says Schoen, "we are the roof."

Schoen has seen a rise in interest in thin-film technology from architects, and says his firm has had inquiries about designs ranging from solar sails to tensile structures. In other words, thin films, like their crystalline predecessors, are themselves begetting exciting and highly visible solar structures, as Scarpa and fellow Pugh + Scarpa partner Angela Brooks are realizing in a transformation of the Venice, California, bungalow they share. A solar canopy comprised of thin-film panels will wrap a 1,200-square-foot extension of their 700-square-foot home. They call the addition the Solar Umbrella, recalling Paul Rudolph's Umbrella House and Heyward Apartments of 1953. The panels of amorphous silicon will meet all of the Solar Umbrella's electrical demand, while screening the house from intense southern sunlight. "Solar panels, conventionally relegated to a one-dimensional utilitarian application, define envelope, provide shelter, and establish a distinctive architectural expression," the partners write in a summary of the project.

The panels look like tinted black glass from the outside, but from below, says Scarpa, incident light is filtered as through a prism, resulting in rainbows of illumination that "enliven the more permanent and fixed elements of the design," say the designers.

That's certainly a far cry from tacking solar panels to the roof. ■

Light and shadow are filtered through PV cells on the facade of a municipal building in Winterthur, Switzerland (right). An array of sparkling blue tiles tops the Toyota Motor Sales building in California (below right). The PV cells for Pugh + Scarpa's Solar Umbrella (below) will provide form and shading, and meet all its energy needs.

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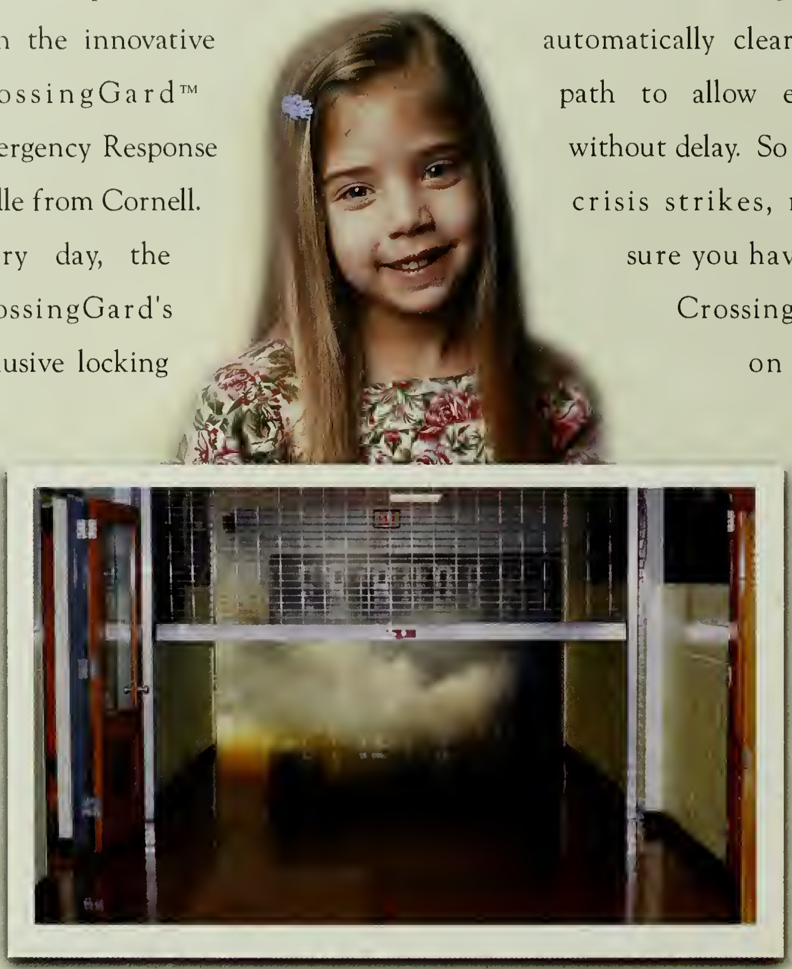

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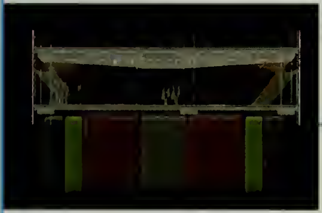
Zoom In

Jie Fang Daily News and Media Group

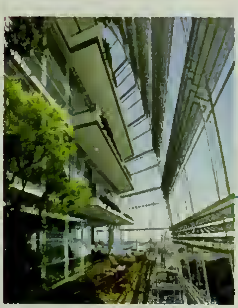
By Deborah Snoonian, P.E.

Transparent office buildings are not a common sight in Shanghai—yet. But this daily newspaper wanted to convey a sense of openness to the city. So San Francisco firm Kaplan, McLaughlin, Diaz designed a glazed tower that harvests daylight and incorporates greenery. Scheduled to begin construction this fall, it garnered a 2004 MIPIM/Architectural Review Award for unbuilt work, the same one given to Foster and Partners for Swiss Re in London. Now that's news fit to print.

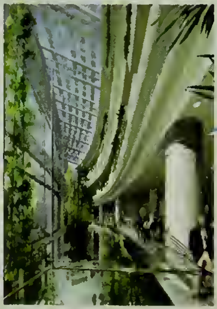
Sky Garden
Topping the tower is a green roof partially enclosed by a steel-and-glass structure with rolling fabric shades and photovoltaic panels incorporated into overhead shading devices. Workers can enjoy its tea garden and miniature golf course.



Floor Plans
Light shelves and wide floor plates allow sunlight to penetrate, while sunshades and a facade of high-performance glass prevent excessive heat gain. A wireless network gives workers mobility.

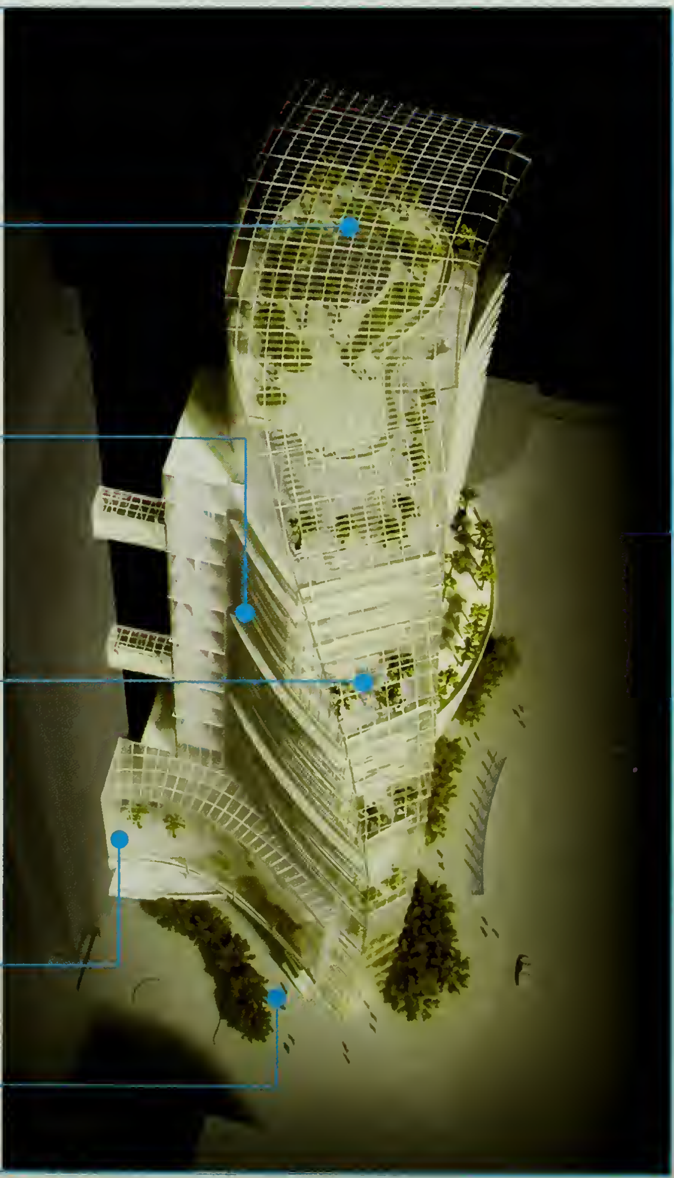


Solarium
This multifloor atrium will create a "stack effect," enabling air to circulate freely. Photovoltaic panels used in the facade will partly shade the interior. Each floor will have a view.



South Atrium
The tower's entry level will be open to the public for shopping and dining. The atrium also acts as a heat buffer for the tower.

Site Design
Underground parking reduces the project's footprint. The building is shaped to mitigate wind loads; setbacks on its southeast side allow views of Pudong, Shanghai's new business district.



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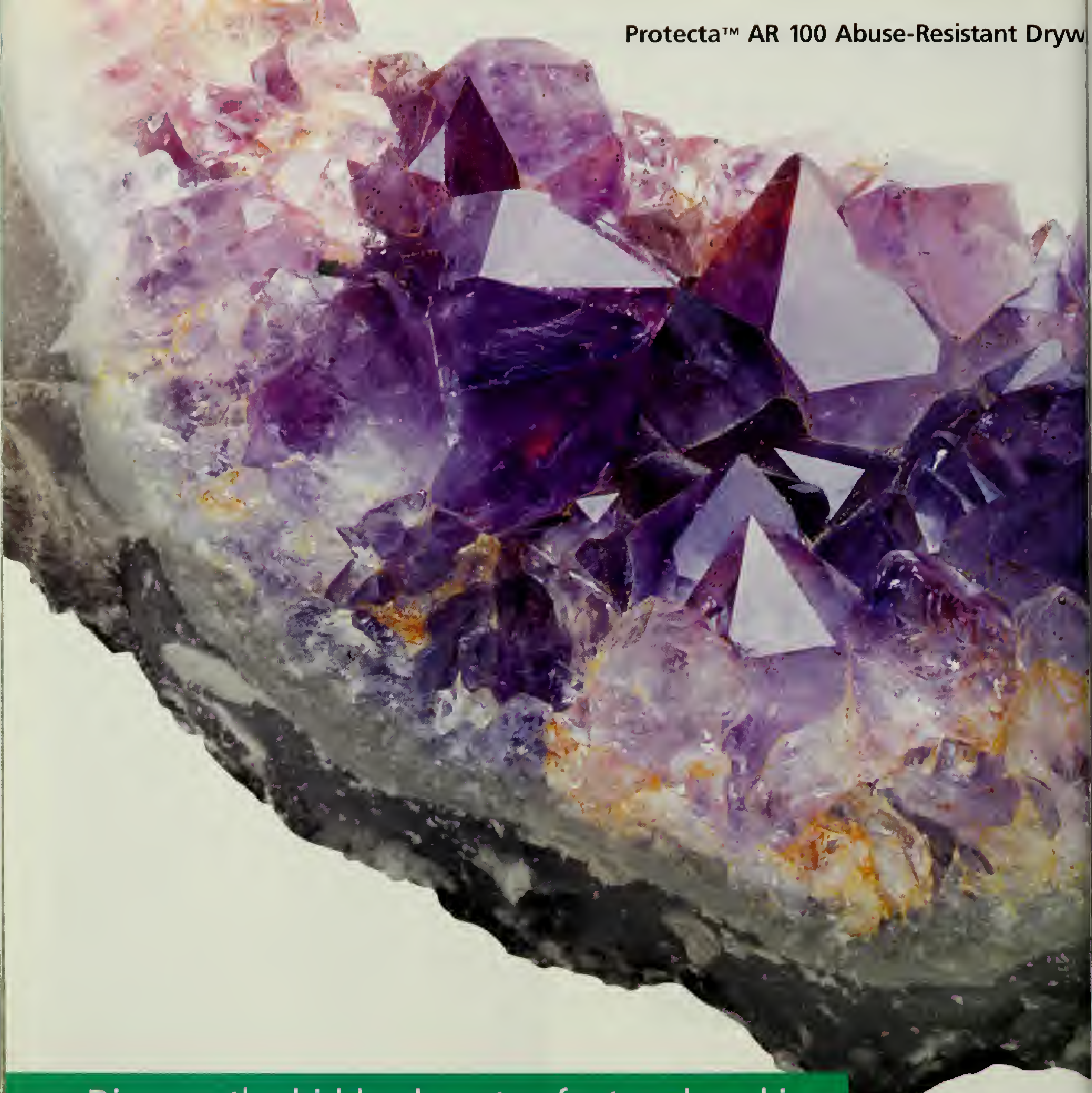

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Tech Briefs

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BYTES

The Lower Manhattan building team has issued guidelines on how to minimize environmental damage while developing the area. The group encourages builders to limit energy consumption, collect rainwater and minimize runoff during construction, and use materials that are recycled or recyclable.

The National Renewable Energy Laboratory is researching new ways to make photovoltaic cells by combining engineered proteins with bits of semiconductor material.

Philips Electronics and E Ink Corporation are partnering to develop a flexible digital "newspaper" made of plastic that displays text and grayscale photographs. They expect to release the product in 2005. Can rolled-up electronic CAD drawings be far behind?

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has published a new standard for providing acceptable indoor air quality for low-rise residential buildings, which comprise single-family homes and multifamily housing.

Professor Benjamin W. Schafer at Johns Hopkins University has posted a free software tool for assessing the stability of thin-walled structures, at www.ce.jhu.edu/bschafer.

Last fall, MIT's Stratton Student Center was fitted with an array of photovoltaic panels 60 feet long by 15 feet wide, as part of a citywide program to install solar technology.

Presentations from last fall's BuildingEnvelopes.org conference on innovations in facades and environmental systems are available online at www.buildingenvelopes.org.

The Times banks on a mock-up to try out systems for its new building

The mock-up replicates the southwest corner of The Times' planned building (left). During sunset, its glass-and-ceramic facade is awash in a colorful glow (right).

Just a stone's throw from The New York Times' printing plant in Queens stands a glimpse into the company's future: a 4,000-square-foot mock-up of its planned Manhattan headquarters. This one-of-a-kind laboratory for kicking the tires on everything from lighting systems and furnishings to the facade itself is giving The Times a leg up on how its new building will work long before its foundation is dug—and is saving money in the process.

The original plans for a mock-up were much more modest. "We were going to test furniture layouts in a warehouse in Manhattan," says David Thurm, vice president of real estate development for The Times. But after the 2000 unveiling of Renzo Piano's model of a fully glazed tower, partially shaded by ceramic rods, the company initiated discussions with engineers, manufacturers, and researchers. "The design is innovative, and that's important to us. We wanted to ensure we'll end up with a high-performance, energy-efficient building," Thurm says. At a January 2003 meeting, scientists from Lawrence Berkeley Laboratories (LBL) suggested creating a test bed where actual lighting conditions could be measured and compared to values predicted in computer models. The Times agreed, and the mock-up opened in December 2003.

The structure stands today just as envisioned by Piano and architect of record Fox + Fowle. Four companies manufactured its one-of-a-kind facade. Interior architect Gensler designed the offices, cubicles, and open spaces, using furnishings from multiple manufacturers. Susan Brady Lighting Design specified the different lighting and shading systems under scrutiny. For LBL's "solstice-to-solstice" research program, funded by a grant from New York State's energy agency, 90 sensors silently collect real-time information on indoor temperatures, lighting levels, and reflectivity as ambient lights dim and automated shades rise and fall in response to the sun's intensity.

These efforts will pay dividends when it comes time to break ground. "The building's systems will be affordable and easy to commission" because of the studies, says Thurm. The human touch is being given its due, too: Times employees will be allowed to work at the mock-up this spring to test-drive its comfort. Piano's design, it seems, is as innovative as The Times' approach to getting it built. "We think all buildings should be done this way," Thurm says.

Deborah Snoonian, P.E.

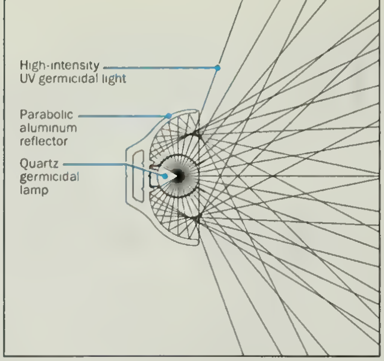
Times employees will work at the mock-up this spring to test its comfort.

For improving indoor air quality, is UV treatment the light at the end of the duct?

Though sick-building syndrome is typically blamed on poor indoor air quality, it's difficult to trace the precise causes of a person's symptoms. Nonetheless, HVAC systems—those large-scale Petri-dish-cum-microbial Habitrails—figure prominently in efforts to deal with this workplace scourge. Recently, a team of Canadian and U.S. scientists may have spotted a light at the end of the duct: ultraviolet germicidal irradiation (UVGI).

A study led by McGill University of Montreal suggests that mounting UVGI lamps in air ducts can improve the health of a building's occupants. While it's been known for some time that zapping cooling coils and drip pans with UV rays can cut down microbial action, this study is considered to be the first significant demonstration of the technique's health benefits.

Researchers surveyed 771 workers in several Montreal office buildings over a nearly one-year period. They installed UVGI lamps in the ducts of the buildings, turned them off for 12 weeks, then on for 4 weeks—a cycle repeated three times. The researchers noted a 20 percent drop in "building-related" symptoms (e.g., headaches, fatigue, skin irritation, and respiratory problems) among study subjects when the lamps were on. Allergy symptoms in some subjects dropped by as much as 40 percent. "I would recommend that if people have a problem with microbial contamination in their ventilation system, they use UVGI [instead of] germicidal chemicals," says epidemiologist Dick Menzies, the lead researcher on the study.


High-intensity UV germicidal light
Parabolic aluminum reflector
Quartz germicidal lamp

The McGill study used UV lamps with parabolic mirrors that increase the treated area.

Researchers also reported that UVGI was 99 percent effective at destroying microbes on duct surfaces, and about 25 to 30 percent effective in killing airborne bacteria.

UV treatment has advantages over alternatives like chemical disinfectants and ionization, according to experts. Disinfectants have a limited range and can pose chemical dangers of their own; ionization can cause particles to settle on the walls and floors of a building, where they can be stirred up again.

The study concluded it would cost $52,000 to equip a roughly 118,000-square-foot office building with UV lamps, which would add $14,000 in operating costs per year. This is a modest investment, they suggest, compared to productivity losses tied to sick-building syndrome.

A longtime fixture in hospitals and factory clean rooms, UVGI technology has attracted renewed interest from scientists and public health officials, who suggest it may be effective in treating drug-resistant tuberculosis and SARS and could figure in bioterrorism-preparedness scenarios. Experts say the results of this study, while promising, must be replicated to be validated, and that neither UVGI nor other treatment techniques can correct design flaws that introduce airborne pathogens in the first place. "UV shouldn't be used as a band-aid," said J. Patrick Carpenter, senior engineering principal at Kling, a Philadelphia-based A/E firm. "You want to eliminate contamination at the source." *Ted Smalley Bowen*

Don't blow off steam—microturbines make cheap, clean energy from waste heat

Distributed power holds promise for reducing peak loads and improving the security of the energy grid. But the usual solution, diesel generators, involves nuisances like fuel storage, fire-safety concerns, and emissions permits. Buildings served by utility or district steam systems, however, can take advantage of microturbines—devices that eliminate those problems while producing almost-free power.

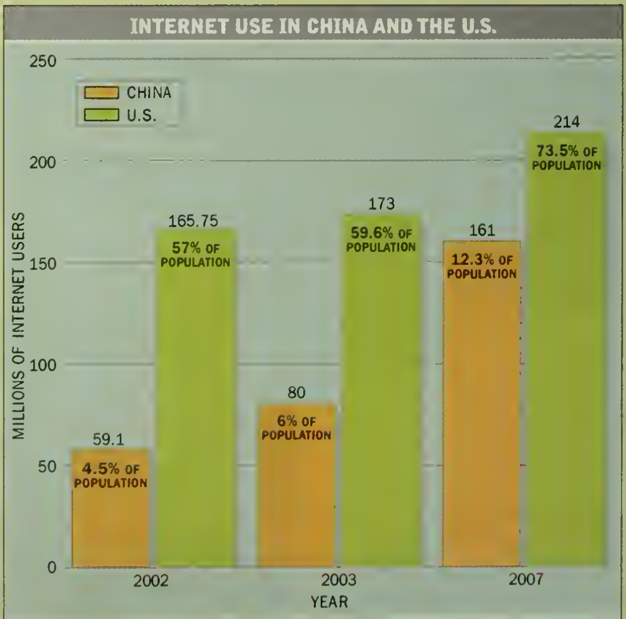
As the name implies, microturbines are small, taking up a footprint about a yard square. They don't generate stand-alone power, but use waste heat from high-pressure or district steam systems to produce energy, in a process adapted from manufacturing facilities like pulp mills. They cut emissions of nitrous oxides and carbon dioxide by 50 percent or more compared to diesel-powered generators.

One company, Douglas Energy of California, has a grant from the Department of Energy to install prototype systems in cities with high electricity prices. The company's 150-kW unit can handle the energy demands of a 200,000-square-foot commercial building in a moderate climate. At the Rolex Realty Building in New York City, the system feeds an absorption chiller that produces chilled water and requires no permits or emissions treatment. The company estimates its microturbines will last 20 years with regular maintenance.

More than 100 U.S. cities and many multibuilding facilities such as colleges are served by steam systems. With federal and state energy agencies offering grants to offset installation costs, microturbines could pave the way to a cleaner, energy-efficient future. *Lindsay Audin*

What the Numbers Say

In China, the number of Internet users is rising sharply—but even so, the majority of Chinese citizens still lack access to the wired world. ***D.S.***



SOURCES: CHINA INTERNET NETWORK INFORMATION CENTER, CIA WORLD FACTBOOK, COMPUTER INDUSTRY ALMANAC

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Metal Roofing Panels

The Vertical Challenge

Boyds Bear Country
Gettysburg, PA
Owner: Boyds Bear Collectibles Ltd.
Architect: LSC Design
General Contractor: Kinsley Construction, Inc.
Roofing Contractor: M. Potteiger Inc.
Profiles: Snap-On Batten & SNAP-CLAD
Color: Custom Color-Dark Colonial Red, Charcoal Gray

The major challenge in designing this structure was to create a wood board and batten siding look with maintenance-free metal. The PAC-CLAD Snap-On Batten Panel achieved that look, but was not designed to be installed as siding. Petersen Aluminum was brought in to consult with the design team. An alternate attachment solution was found and approved through a mock-up of the siding. Lapping the panel system with alternating panels made it possible for M. Potteiger Inc. to accomplish an installation of this magnitude.

This large barn structure, designed by LSC Design Inc., was then capped with 42,000 sq. ft. of Charcoal SNAP-CLAD Panels, complete with two 30 foot cupolas topped with a 7 foot weathervane in the shape of a bear. This 4-story building serves as a retail store for Boyds Bear Collectibles, houses their corporate offices, a museum and a food court to accommodate large bus tours.

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Tech Products

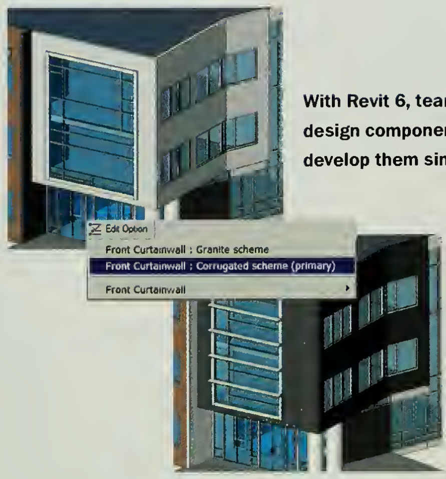
Six new tools for today's architects

By Deborah Snoonian, P.E.

Revit 6

Autodesk
www.autodesk.com
(for Windows only)

Ever since acquiring Revit two years ago, Autodesk has been banking on this parametric design tool to entice its large customer base into the world of 3D CAD. Progressive releases of Revit have improved its collaboration and team communication tools. The major upgrade in Revit 6 is a "design option" feature that allows architects to produce, present, and simultaneously track different versions of the same project for a client within a single file (e.g., options for interior layouts, colors, and materials). This shortcut eliminates the need to create multiple memory-hogging versions of the same project and decreases the chance that designers will lose track of changes and revisions as design options are developed simultaneously. Another new feature allows a user to "borrow" one or more components of a design (e.g., a wall, stairway, or detail) even as another user is working on the same design, which enables different team members to work on multiple aspects of a project simultaneously.


Edit Option
Front Curtainwall : Granite scheme
Front Curtainwall : Corrugated scheme (primary)
Front Curtainwall

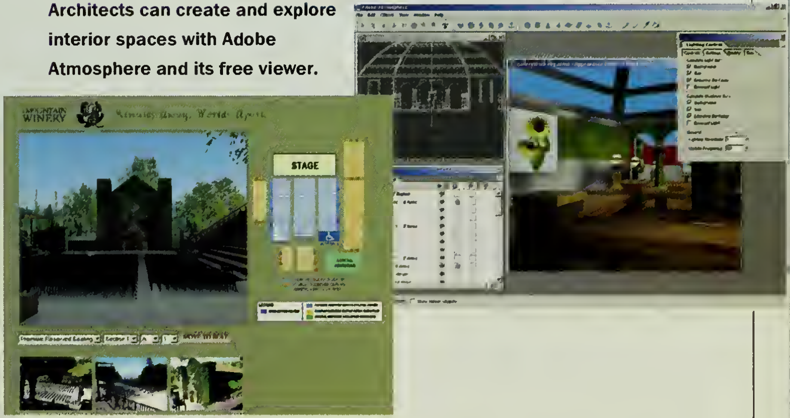
With Revit 6, team members "borrow" design components from a single file to develop them simultaneously.

Atmosphere

Adobe Systems
www.adobe.com
(for Windows only)

Adobe's new tool lets users create 3D content and animations at a lower cost than most high-end design software programs. It consists of three products: Atmosphere, the tool for creating the environments; Atmosphere Player, a plug-in similar to Macromedia's Flash plug-in that lets anyone using a Web browser have access to files created with Atmosphere; and an optional, publicly available server where users can meet online to view, change, and annotate 3D content. Using simple keyboard and mouse commands, a viewer tours a 3D environment built in Atmosphere from different angles and viewpoints.

Architects can create and explore interior spaces with Adobe Atmosphere and its free viewer.



Pictometry Online and Electronic Field Study (EFS) Software

Pictometry International
www.pictometry.com
(for Windows and Mac)

Pictometry has patented a system that combines aerial photography with measurement software in a service that lets users download high-quality digital images on which dimensions can be measured by a simple click of a mouse. The company has a database of aerial photographs of 11 states and the District of Columbia; users can search by street address, county, or landmarks such as airports or well-known buildings. Images can be purchased and downloaded directly from Pictometry's Web site, and with the aid of Pictometry's Electronic Field Study (EFS) software, users can get dimensional data for any feature—in a building, street, even a grove of trees—by pointing and clicking directly on the maps themselves. The company will add photographs of more locations over time.

Pictometry and EFS give users dimension information directly from aerial maps (below, an image of Arlington County, Virginia).

Tech Products

Sympodium ID250 Interactive Pen Display

SMART Technologies
www.smarttech.com
(for Windows and Mac)

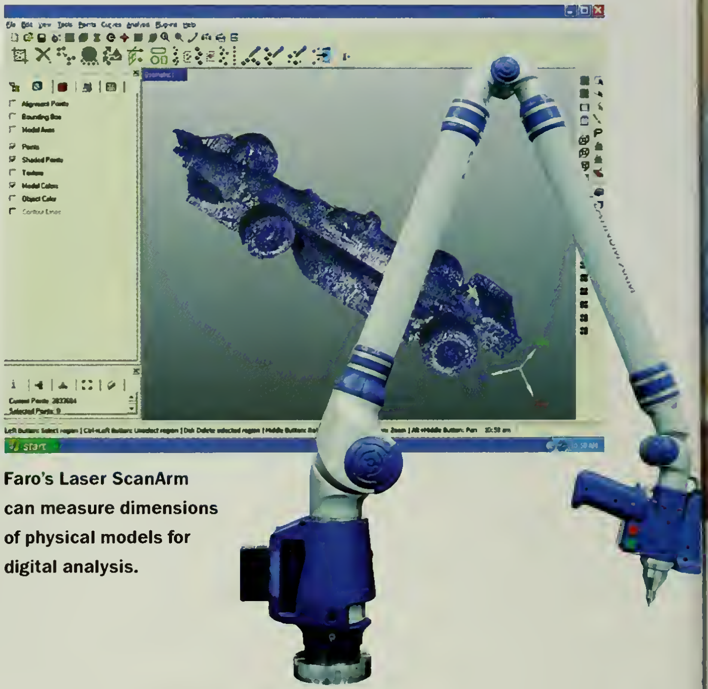
This leading seller of interactive whiteboards has released its desktop-size display and presentation device with a smaller footprint and at a lower price. Aimed at educators and team leaders who want to capture digitally the results of design reviews, critiques, and other collaborative work, the ID250 allows users to make notations on CAD files, photos, or other computer images directly on the display's pressure-sensitive screen. The device's tethered pen requires no batteries or special maintenance, functioning much like a stylus that's used to enter information into a handheld organizer. The ID250 can be connected to a larger monitor or screen so that others may view the work being done. Function buttons located at the bottom of the display can be programmed to access features of SMART's proprietary Notebook software, as well as tools like an on-screen keyboard and toolset. Additional software packages that come with the ID250, SMART Board and SMART Ideas, contain tools for inserting audio, video, and text notes into existing digital media.

The ID250's surface is pressure-sensitive for pen input.

Laser ScanArm

Faro Technologies
www.faro.com

This device is a combined seven-axis laser-scanning measurement system—in English, this means it offers flexibility and portability. Designers and their collaborators can use the ScanArm to take the dimensions of physical models, or portions of buildings, for many different purposes (e.g., inspection, comparing physical data to CAD models, rapid prototyping, reverse engineering). Unlike similar instruments, the ScanArm's hard probe (the portion of the device that touches an item being scanned) and laser scanner (which does not touch the item) are capable of taking measurements at the same time, saving users the hassle of grappling with attachments and cables. Its laser scanner measures more than 13,000 points per second. It comes equipped with software for analyzing the data, or "point clouds," that are collected by the scanner; the point clouds can also be read by competing software, such as Geomagic, PolyWorks, and Rapidform.



Faro's Laser ScanArm can measure dimensions of physical models for digital analysis.

AirGen Fuel Cell Generator

Ballard Power Systems
www.ballard.com

This portable electricity generator is aimed (for now) at the Japanese residential market, where houses are smaller and energy costs higher than in many other parts of the world. Eventually, the company intends to manufacture them for North American and European markets. The AirGen is the first portable fuel cell suitable for indoor use. It makes electricity from separately sold canisters of hydrogen that snap onto the equipment and can be replaced during operation. As long as the canisters are attached, it can supply electricity indefinitely, and unlike gasoline- or other fuel-powered generators, it doesn't create excess noise or emissions that must be controlled. Appliances, lights, and other devices that would normally be plugged into an electrical wall outlet can be connected to the generator instead. It can also be used as a backup power source. With its built-in surge protector to prevent brownouts or high-voltage spikes, this device—though aimed at the household market—is an attractive option for ensuring that critical systems like phone rooms and server closets stay up and running. ■

The AirGen Fuel Cell Generator, intended for residential use, makes electricity from hydrogen.

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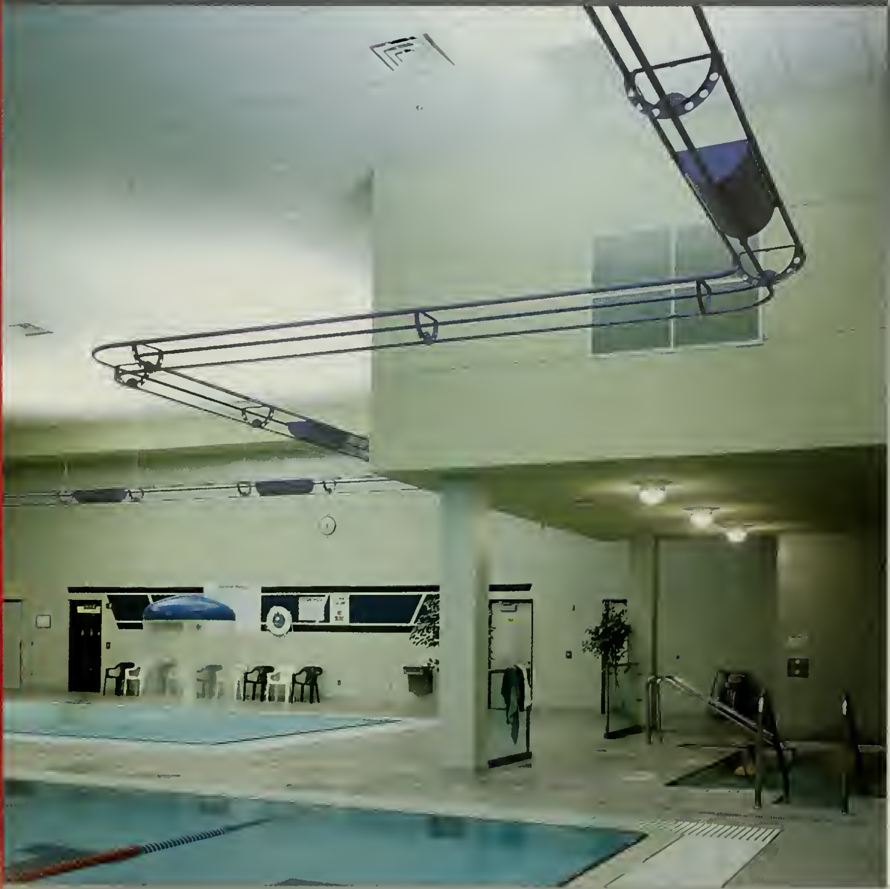

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Lighting

A daylit American museum, a stroll through nighttime Montreal, and remembrance of things past in Japan

BRIEFS

Brush up on new techniques in daylighting at the Lightfair International conference this month. Making its debut this year, the Daylighting Institute takes place in tandem with the Lightfair Institute's slate of educational panels on Monday, March 29, and Tuesday, March 30, 2004, at the Las Vegas Hilton Convention Center. Discover how to harness daylight using current technologies in glass, shading, skylighting, and controls to create functional, healthy, and energy-conserving buildings. **Topics of sessions include: Toplighting, Controls,** Principals of Modeling, and Advanced Daylighting Systems. A new Daylighting Pavilion in the exhibition hall will include leading manufacturers of daylighting and daylight integration products. For more information on speakers and registration, go to www.lightfair.com.

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While many of our colleagues at RECORD this month set their sights on China, we lighting editors cast a broader cultural net to tour projects around the world whose architectural illumination objectives are quite distinctive and divergent. The lights of March include a museum of American art and artifacts in New England, the enhanced nighttime profile of revered civic landmarks in Montreal, and a Japanese memorial poised for pondering war and remembrance. Up front in Creative Uses, we also survey a new commercial center in Bilbao and the sprucing up of Symphony Space, a favorite cultural center in Manhattan. It's an eclectic tour of sites that addresses bright spots in American art and music, charming streets no longer shadowy in a Canadian metropolis, and dark yet important lessons of wartime acts and their consequences. Learn how lighting helps accomplish this array of missions.

As we close this issue of the magazine in February, a harsh winter in New York has us longing for more daylight. If you are also looking ahead to invincible summer, plan a trip to the Peabody Essex Museum in Salem, Massachusetts. Moshe Safdie has brought unity to the 205-year-old institution and its surrounding neighborhood, with an addition that nearly doubles exhibition space for America's oldest continuously operating repository of art and artifacts. Filled with sunlight via a glass-enclosed courtyard and gallery skylights, the project allowed Safdie and lighting consultants Fisher Marantz Stone to explore the right mix of daylight and electric illumination.

In Montreal (below), Gilles Arpin has blazed a trail as the city's preeminent maestro of exterior lighting. From courthouses to churches, main plazas to footbridges, chances are you'll have a heightened experience of these landmarks upon your next visit.

Honoring the dead in the aftermath of the atomic bomb at Nagasaki would seem to be a heavy burden for a project team. Yet architect Akira Kuryu and Lighting Planners Associates managed to avoid a somber or oppressive scene by creating a sculptural composition incorporating water-filled basins, geometric forms, and light both substantial and fleeting. It's another trip worth taking. *William Weathersby, Jr.*

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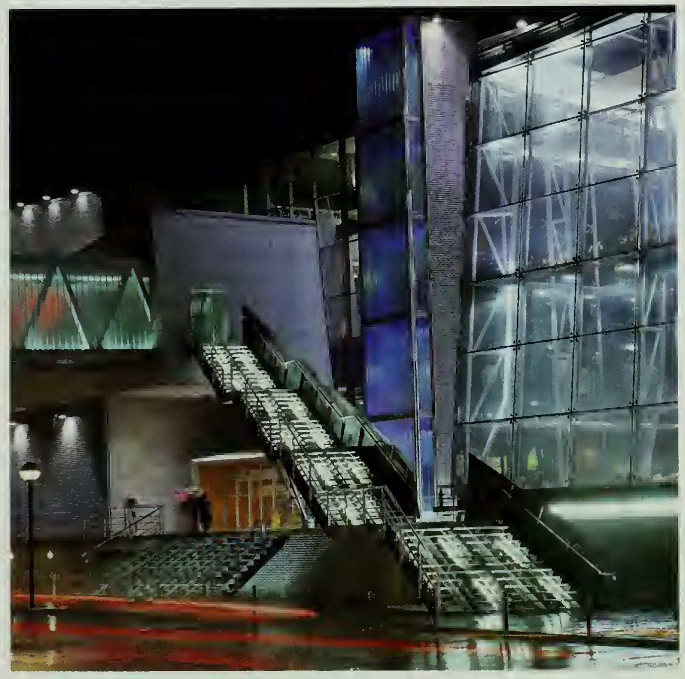
Creative Uses

A mixed-use commercial center in Bilbao warms industrial forms with illumination

Recalling his boyhood, architect Jay Valgora says he enjoyed visits to the steel mill near Buffalo, New York, where his father worked. Its soaring industrial spaces and sculptural scale left an indelible impression, he says. Valgora revisited this early fascination recently when his firm, Walker Group, was commissioned by the real estate company Filo (later bought by ING) to design the Max Ocio commercial center in Bilbao, Spain.

"Bilbao's industrial infrastructure was forced on a beautiful landscape," Valgora says. "Now that the city has become a showcase for architecture and design, since Frank Gehry's museum opened, it sets the bar high for new commercial projects."


Linear fluorescents mounted beneath stair risers enhance the grand entry.

Teaming with lighting designer Dusti Helms, Valgora delved into historical research documenting Barakaldo, the factory neighborhood that is home to the 280,000-square-foot, mixed-use center housing shops, restaurants, and entertainment venues. The city's steel-producing past is evoked by a facade layered with dramatic intersections of floating, corrugated-steel panels and structural U-glass. Helms highlighted the forms with lighting inspired by images of local vernacular structures. "We wanted a contrast between high-pressure sodium and mercury-vapor light sources, and warm versus cool colors," Helms adds.

In lieu of signage, lighting cues movement.

An interplay of lighting and form also stepped in for formal signage, which was restricted by the municipality. Because the center's facade faces a main artery running through Bilbao, the design team used lighting to boldly accentuate materials and form for a signature look.

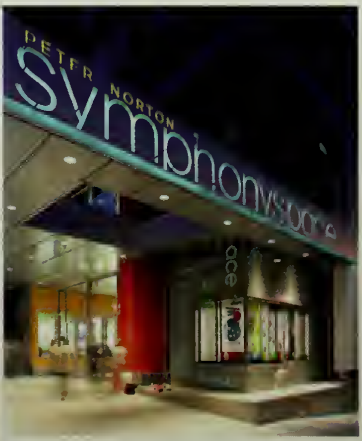
A forced perspective main stair framed by Cor-ten panels connects four levels of the center. Helms uplit the stairway with fluorescents mounted beneath the risers, allowing pedestrians to essentially become part of the design as they block light and cast shadows. A series of exterior stairways are lit by recessed uplights. A glass-enclosed elevator tower glows with blue-gelled fluorescents. Asymmetric floodlights uplight the roofline's horizontal fin. Colored fluorescents illuminate a series of perforated metal panels to give graphic interest to the side of the building. A glass and steel bridge lit by neon makes a connection to surrounding streets.
Leanne B. French

A De Stijl–inspired marquee puts a new face on Symphony Space

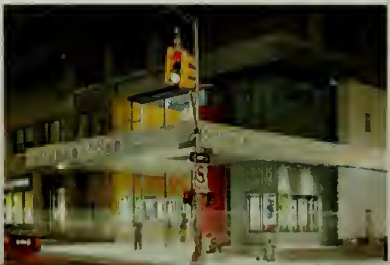
New York City's Symphony Space cultural center has updated its image in a marriage of architecture, graphics, and lighting. A new marquee is one signature of the renovation. Employing intersecting planes and bold colors, Polshek Partnership's "Rietveld on Upper Broadway" design is an homage to the De Stijl–inspired Dutch theaters of the 1920s. Fashioned from an aluminum panel with laser-cut lettering designed by Pentagram, the marquee is intersected at the corner by a column inscribed with the names of performing arts disciplines.

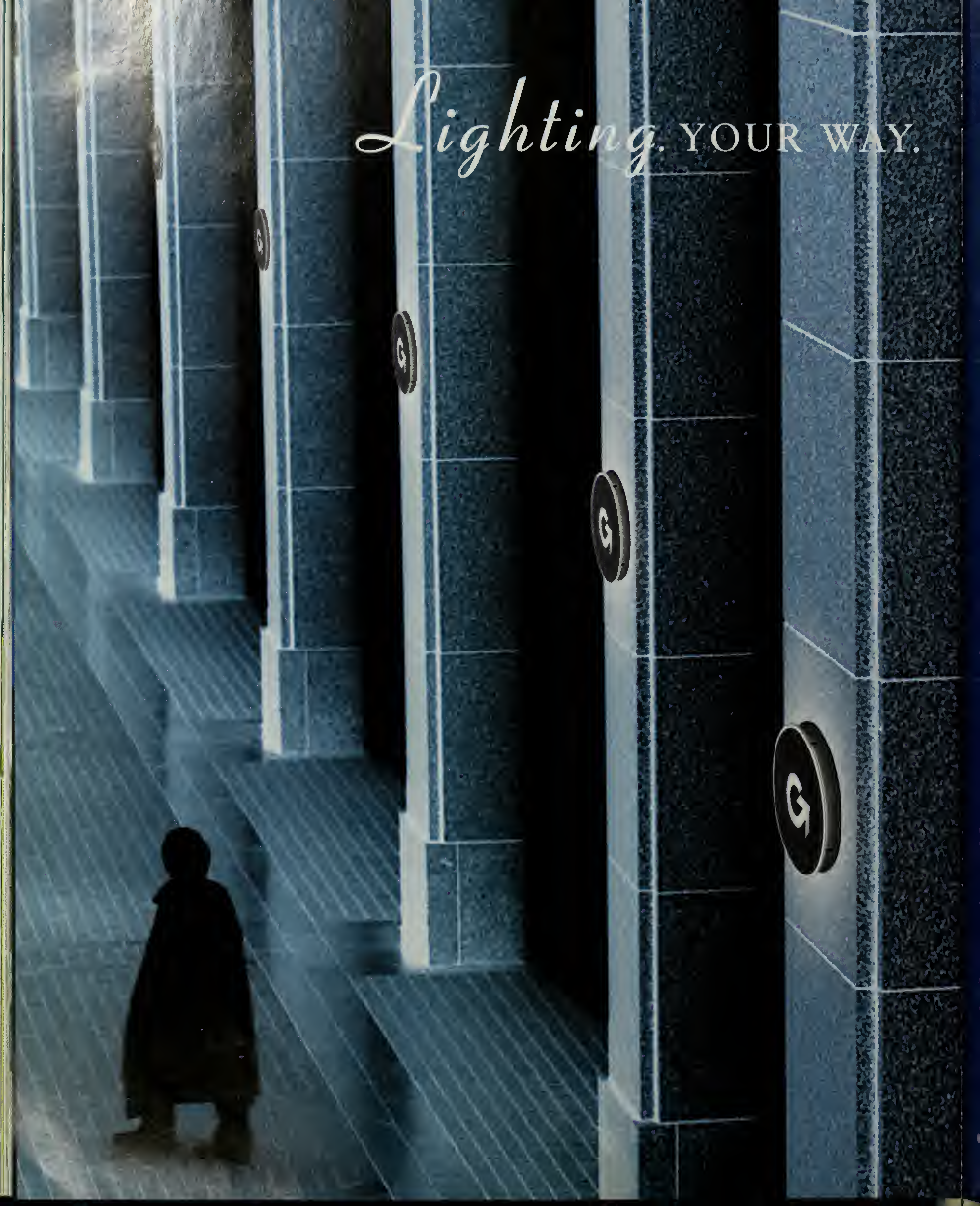
Cline Bettridge Bernstein transformed Polshek's Modernist composition into a beacon. "We discovered that during the day, letters had to read dark because the front panel is lit only by daylight," explains principal lighting designer Stephen Bernstein. "At night, it's a play of opposites where the letters had to read as light on dark."

End-emitting fiber-optic channels with metal-halide illuminators create the illusion of silhouetted letters. Fiber-optic channels also illuminate the text of the column, providing a consistent quality of light and color.
L.B.F.



Backlit panels silhouette letters for a streamlined look at Symphony Space.

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A new courtyard piazz beneath a glass roof gives the museum a central gathering place. At night, the museum is a lighted beacon in Salem, Mass. (opposite).

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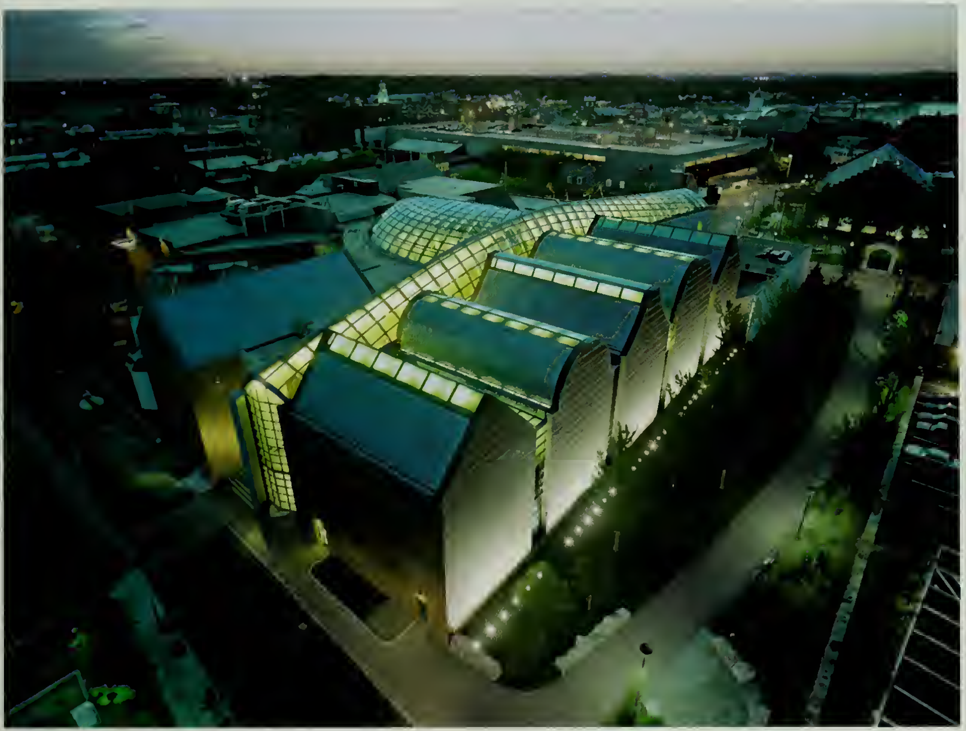
Moshe Safdie's expansion of the **Peabody Essex Museum** gives a community a light-filled cultural center



By Alice Liao

As America's oldest continuously operating museum, the Peabody Essex in Salem, Massachusetts, has built a considerable collection of Asian, African, and American artifacts, totaling 2.4 million pieces. Yet until recently, many of the treasures had never been publicly displayed. Last year, the museum resolved its exhibition-space dilemma with the opening of a 111,000-square-foot addition designed by Moshe Safdie and Associates. The new skylit galleries and transparent public areas nearly double the previous exhibition space and anchor an existing campus of 24 historic properties dating from the 18th and 19th centuries, including a Chinese merchant's house from the late Qing Dynasty recently showcased in the enhanced space. Working with Safdie, lighting design consultants Fisher Marantz Stone created a balance of daylight and electric lighting that complements the exhibitions and adds flexibility while enhancing the museum experience with a connection between indoors and out.

Part of a $125 million, 250,000-square-foot renovation that brought unity to the 205-year-old institution and its surrounding neighborhood, the new wing embraces its older counterparts with an architecture reflective of the local community. Galleries are organized into what Safdie calls "houselike pavilions," whose rooflines and scale evoke Salem's traditional residences. Brick and sandstone cladding recalls the museum's existing buildings. The addition adjoins the older buildings via an interior street and glass-enclosed courtyard that functions as a gathering and performance area. "We wanted to unify the old and new sections of the museum with a public space that was versatile," Safdie says. With arcs and curves hinting at Salem's nautical ancestry, the courtyard roof and glazing offer views of the sky during the day and establish visual ties with the outside world; aglow at night, they lend the museum presence. "The sense of being inside and outside was part of the lighting concept," says lighting principal Charles Stone.

The contouring of the glazing and courtyard roof, which was informed by studies of toroids, is achieved with the repetition of clear glass panes identical in size. Articulated with fluorescent cove lighting, the interior street, which extends from the front of the building to the back, serves as the glowing spine of the expanded facility, providing access to the new

Alice Liao, a freelance writer and editor specializing in architectural lighting, is based in Teaneck, New Jersey.

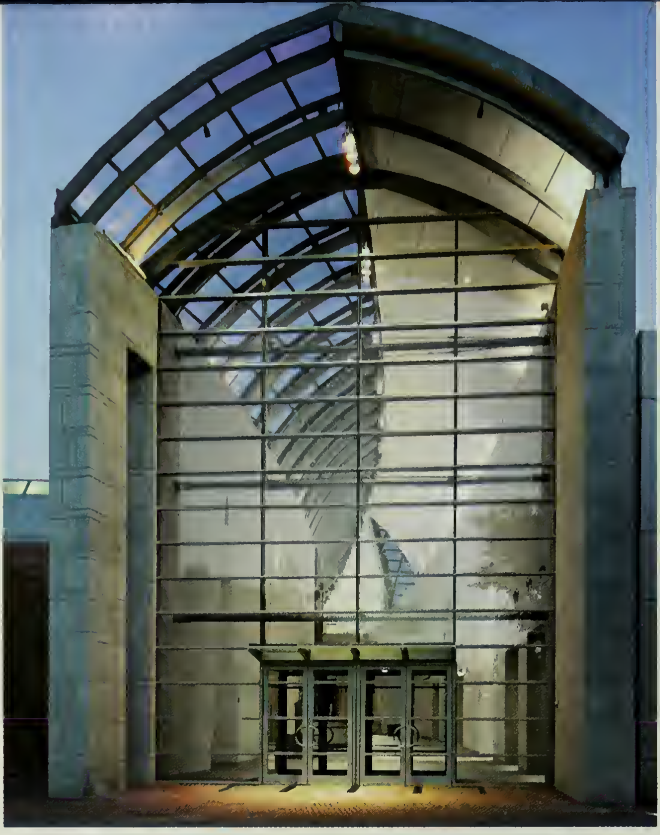
Project: *Peabody Essex Museum, Salem, Mass.*

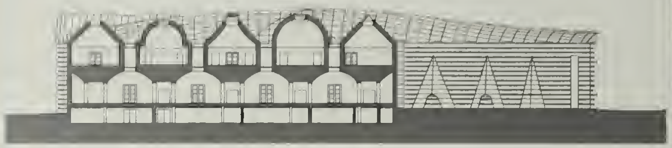
Architect: *Moshe Safdie and Associates—Moshe Safdie, principal; Isaac Franco, Paul Gross, project managers; Michael Kim, project architect*

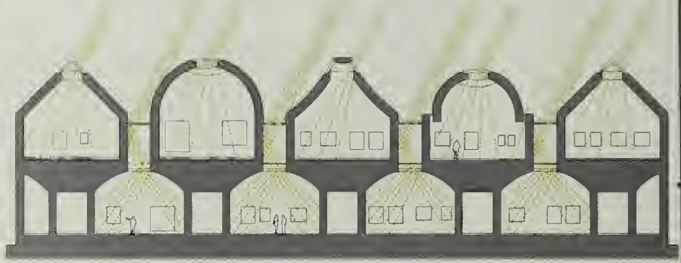
Lighting designer: *Fisher Marantz Stone—Charles Stone, principal; Hank Forrest, project manager*

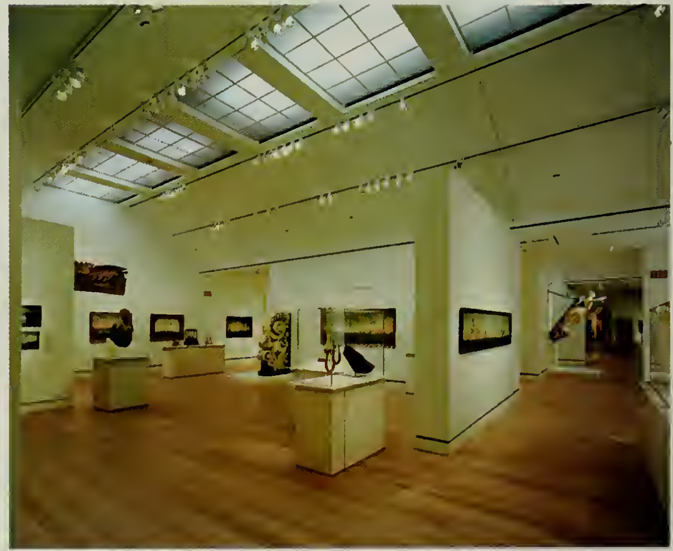
Structural, electrical engineer: *Arup*

Electrical contractor: *Griffin Electric*

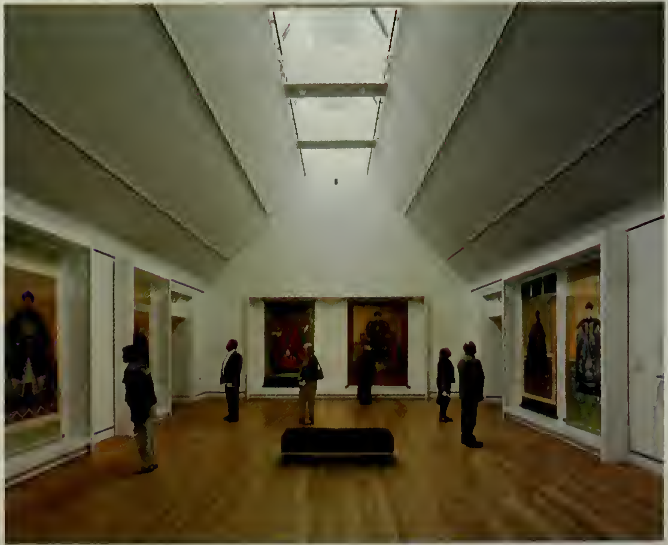








The atrium is a central spine of the expanded museum, likened by executive director Dan Monroe as a "village green" (above and section, top right). Crucial to the museum curators' wishes and Safdie's design is the introduction of daylight into the first- and second-floor galleries (lower section, and bottom right). Lay lights light galleries (right).



exhibition pavilions and leading to the courtyard and older galleries. Although partial glazing enables sunlight to penetrate the passageway, theatrical fixtures, mounted in groups along the apex of the ceiling, are separately switched to adjust for daylight shifts and nighttime functions that require lower light levels. The fixtures are lamped with 3200K ceramic-metal-halide sources, chosen for their color quality, and outfitted with a variety of lenses to direct light downward. Says project manager Hank Forrest, "The different lenses allowed us to use the same fixture and lamp throughout the spine, despite the fact that the cross section through the space varies considerably moving from one end to the other."

In the courtyard, motorized shades control daylight via the simple operation of a push button. Resembling sails, the shades are critical for nighttime events where, if illuminated, they can eliminate the oppressiveness of a black sky. "Safdie coordinated the sails with a series of custom bar fixtures so that both uplight and downlight could be deployed to create a lantern effect visible from inside as well as outside," says Stone. Suspended 2 feet below the sails, the 18-foot-long bars consist of adjustable PAR fixtures contained between tubes of uplights that accommodate track lighting for exhibitions. For performances, special events lighting is integrated into an upper-level arcade, while in the corridors flanking the courtyard, luminous disks mounted on walls give the illusion of expanded space. Incandescent sources are used throughout the

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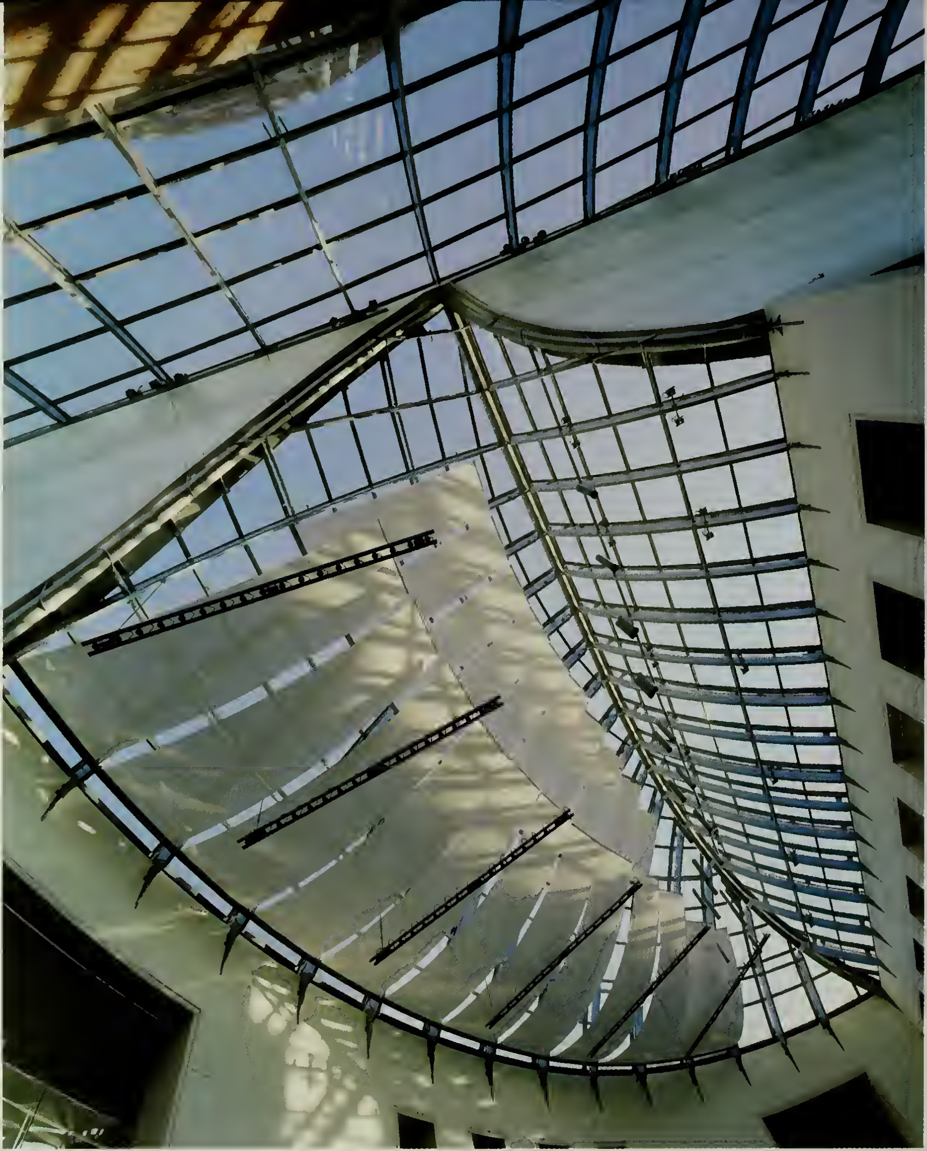
A network of motorized shades, or sails, adjust light by shielding sunlight in the atrium. Custom bar fixtures are designed so that both downlights and uplights are deployed for a lantern effect at night and even illumination during the day.



courtyard to provide dimmability and ensure color consistency.

After dark, in-grade fixtures fitted with metal-halide sources uplight the exterior facade of the houselike pavilions to dramatic effect. During the day, the galleries, which are split between two floors, rely on lighting that can be adjusted according to fluctuations in daylight as well as the requirements of certain installations. Because the museum's collections run a broad gamut, the curatorial team required flexibility in locating artwork in each space, says Forrest. While upper floors receive daylight from skylights located at the top of each pavilion, ground-floor galleries are daylit by light shafts formed by painting the spaces between the houses white and equipping them with skylights and lay lights. All of the skylights can be closed off with scrolling shades and are combined with fluorescent illumination and track lighting to supply ample ambient light and flexibility.

Other highlights of the project include a 190-seat auditorium where incandescent striplights, hidden behind a wood lattice, make the walls appear to glow. Above, concealed wall washers bathe the ceiling in white light.

One of the fastest-growing museums in the country, Peabody Essex has increased its operating budget from $4 million to $12 million in just over seven years, while the endowment grew from $23 million to more than $80 million. Although it barely rises above its neighboring buildings, the rejuvenated Peabody Essex is a new axis for the community, both culturally and architecturally. Like the bounty of traders that began the collection two centuries ago, the museum's forms and interiors, augmented by a subtle balance of light, are captivating yet somehow familiar. ■

LINKING A DISPARATE COLLECTION OF AGING BUILDINGS WITH NEW HOUSELIKE WINGS, THE SPINE IS AWASH IN LIGHT.

Sources

Lighting track and downlights: *Edison Price*

Custom pendant fixtures: *Cole Lighting*

Fluorescent cove uplights: *Elliptipar*

Downlights: *Times Square Lighting*

Exterior uplights: *Hydrel*

Dimming system: *Lutron*

For more information on this project, go to Projects at **www.architecturalrecord.com.**

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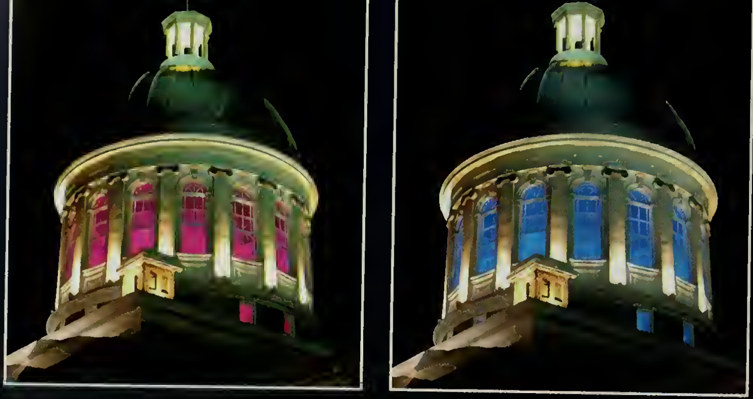
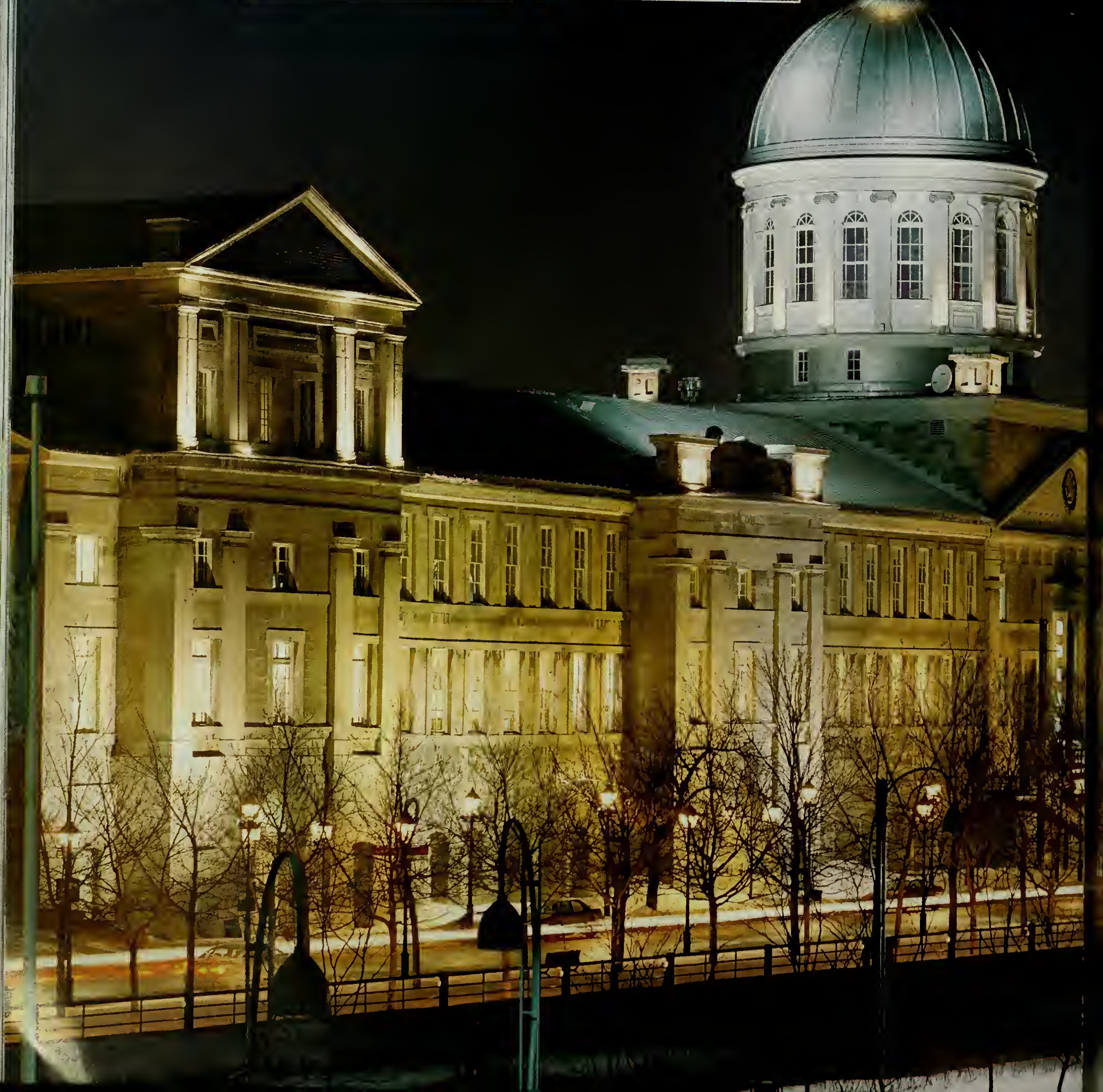




The Neoclassical Marche Bonsecours (below), a market now converted to a modern retail mall, was designed by architects Footner and Browne and dates to 1844–47. Arpin lit the facade with 3000K fixtures, adding colored light to enhance its dome.

PHOTOGRAPHY: © MARK CRAMER, EXCEPT LE PHOTOGRAPHE MASQUE (OPPOSITE, INSETS); ERIC BARBEAU (PORTRAIT)

A leading design light of Montreal, **Gilles Arpin** has raised the profile of the city's landmark buildings

By William Weathersby, Jr.

Montreal lighting designer Gilles Arpin made a transfer from the world of theater to illuminating the buildings he loves in his native city. For more than two decades he worked as a head electrician, lighting director and designer, and production manager for opera, ballet, and musical performances, from Broadway-style shows to rock and roll extravaganzas. On world tours, he grew passionate about the cities to which he traveled, getting a crash course in design along the way by studying with leading lighting designers and scenographers: masters such as Nicholas Cernovitch in New York, Roberto Oswald in Argentina, Joseph Svoboda in Prague, and Michel Beaulieu in Montreal. Arpin's travels sparked a passion for canvasing the architectural particularity of each city he visited, leading him to study urbanism for two years. Now, after spending most of the 1990s experimenting with lighting equipment and championing the results to be had by upgrading civic exterior illumination, he finds himself in a leading role, changing the face of Montreal's nighttime look. He's also made friends among the city's civic administrators, who now seek his advice and expertise to enliven the darkened facades of buildings in their charge.

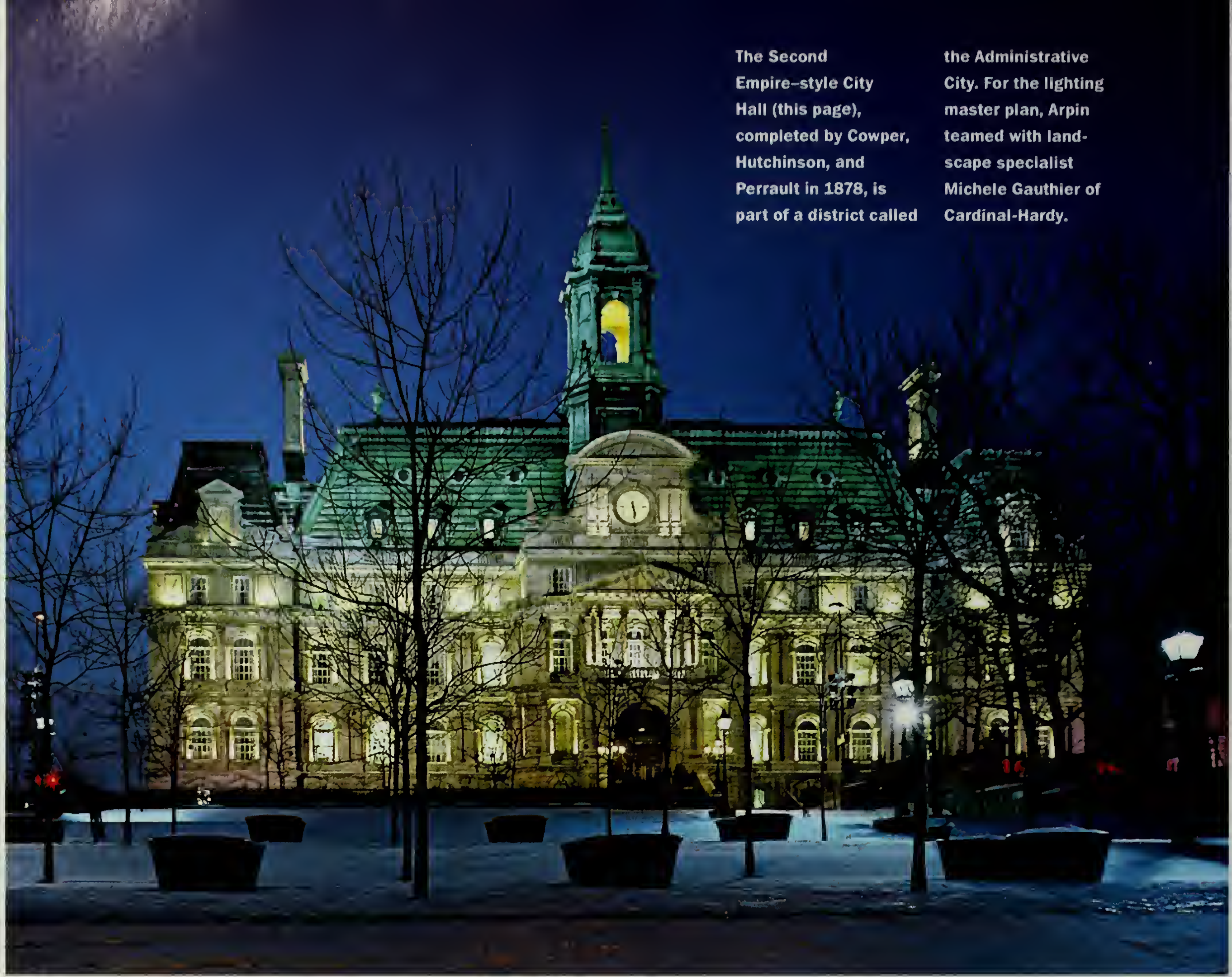
Experience in urbanism and theater inform Arpin's eye.

"Urban lighting design is not only a matter of ornamentation," Arpin says, "but also a way to appeal to our community in the progressive search for better safety, comfort, and ambience. Everybody is familiar with lighting, and no one would take pleasure under horrible lighting in their home. Why endure it in outdoor nightlife?"

Founding his own firm, éclairagepublic (which translates as "public lighting"), in 1996, Arpin has since won commissions to literally cast a new light on the multicultural and historic tissue of Montreal. For the past decade, the city of Montreal administration and the Ministry of Culture and Communications of the Province of Quebec have enlisted Arpin and his architectural and landscape design colleagues to sustain and upgrade the urban design, pedestrian profile, and lifestyle/entertainment options of the historic district known as Old Montreal

In that urban sector alone, Arpin has lit the City Hall, the Christ-Church Cathedral, the Place Jacques-Cartier, and the Place d'Armes. Venturing indoors, Arpin enhanced the multiuse Complex Les Ailes, with lighting that adapts to the various uses of the site.

Arpin's approach is both subjective and technical. He says he

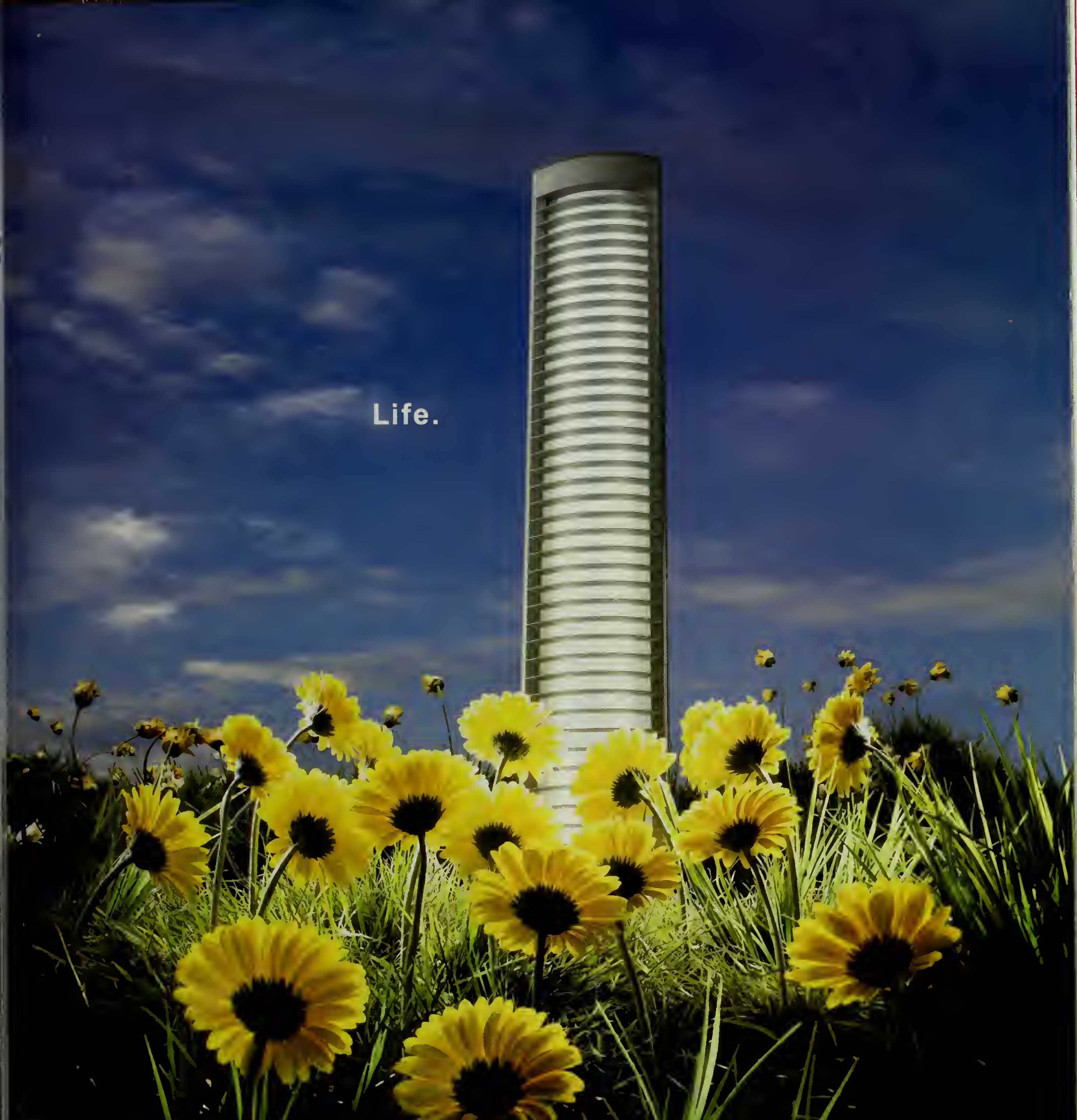


The Second Empire–style City Hall (this page), completed by Cowper, Hutchinson, and Perrault in 1878, is part of a district called the Administrative City. For the lighting master plan, Arpin teamed with landscape specialist Michele Gauthier of Cardinal-Hardy.

sees his role as keeping the focus on proposing straightforward and easily achieved solutions, with minimal maintenance requirements. When he considers an elevation—or even the panoramic sweep of an entire district of buildings, such as the Administrative City—the designer refines the classical use of light in dealing with volumes and details. "Lighting has typically been associated with basic function and security," he says. "Our approach tends to recognize light as a planning element that is an integral part of the overall design."

THREE CITY-PLANNING ADMINISTRATORS SUPPORTED THE GRAND SCALE OF ARPIN'S LIGHTING PLAN FOR OLD MONTREAL.

For a busy designer who seems to have carte blanche and the insider's track to make Montreal synonymous with civic lighting, Arpin is quick to acknowledge his relative newcomer status in the architectural section of the field, crediting other lighting designers as touchstones for inspiration. "In the world of contemporary lighting design, I admire the work of Motoko Ishii, Speirs and Major, and Louis Clair, for the versatility of their projects," Arpin comments. "I like very much the richness and the precision of Paul Gregory's work, as well, and I pay tribute to William Lam and Roger Narboni for what they published [in educational texts]."



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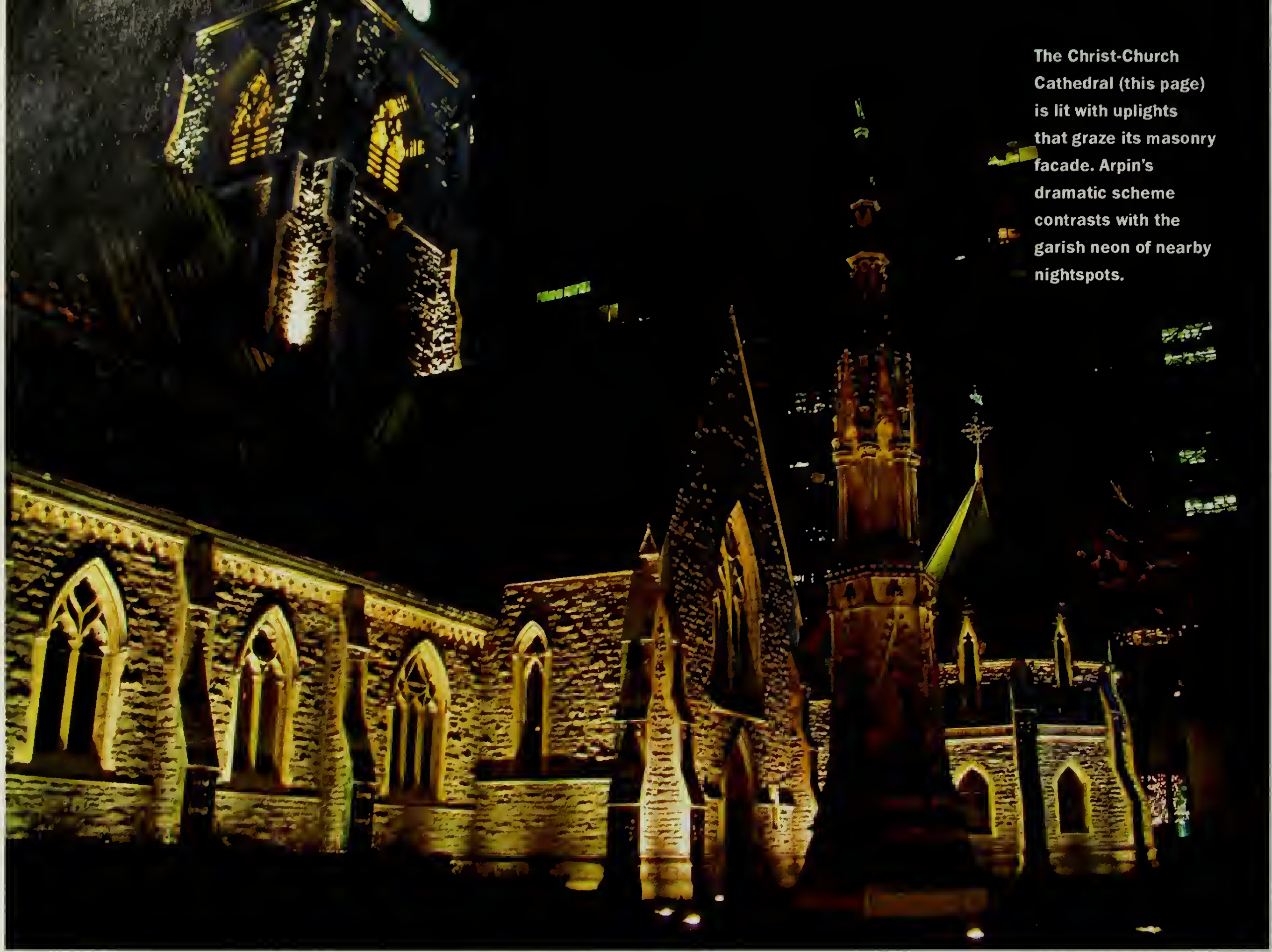

The Christ-Church Cathedral (this page) is lit with uplights that graze its masonry facade. Arpin's dramatic scheme contrasts with the garish neon of nearby nightspots.

Arpin says his lighting compositions are also inspired by art, "Courbet, Vermeer, and other artists, for the treatment of light in their paintings," he says. The conceptual and architectural underpinnings of works by Christo, Jeanne Claude, and James Turrell also inspire his designs. In a lighting-plan study for the Canal de Lachine, for example, a route that begins with the Old Harbor of Montreal and goes up to the Côte-Saint-Paul Bridge, Arpin selected seven key objects, from footbridges to towering old trees, that he washed with color. The resulting presentation collage is like a walk through an extraordinary sculpture garden.

"Our lighting design work and recent research drives us to conceive light scenographies that contribute to the development of human relationships in urban spaces," the designer says. His lighting designs strive to reflect, and to bring out all the colors of, the human conditions held within each urban environment. Arpin's motto is: "Lighting should enhance convivial relationships by revealing the beauty of cities." ■

Sources

Asymmetrical projectors: *Insight Lighting*

Asymmetrical vertical projector: *Sill*

Asymmetrical intensive projector: *Sill; Cyclone; Design Plan; We-ef*

Rectangular extensive projector: *Lithonia*

Street-post lantern with hidden projector: *LUMEC*

Custom fixture: *LUMID*

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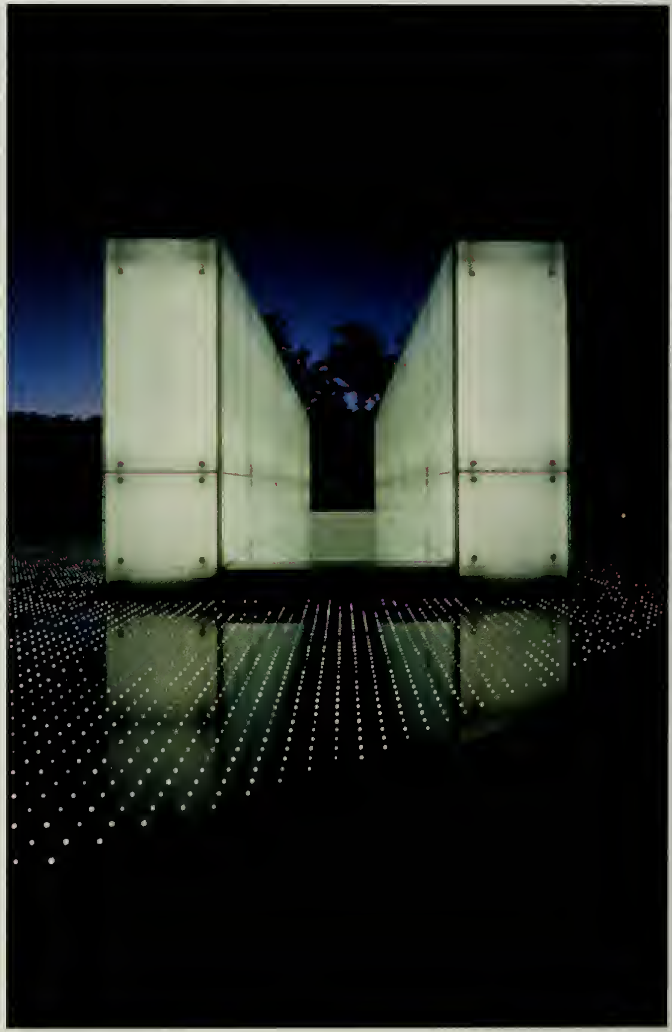
Bearing witness to the victims of the atomic bomb, the **Nagasaki Peace Memorial** embraces water and light

By Alice Laio

In an expression of condolence by the Japanese government to the families affected by the bombing of Nagasaki and Hiroshima, memorial halls were recently opened in the two cities to allow citizens to pay their respects to the victims and to promote local and international exchange on issues relating to the atomic bomb and radiation illnesses. At the Nagasaki National Peace Memorial Hall for the Atomic Bomb Victims, which was designed by architect Akira Kuryu, visitors are invited to pray in a calm, sanctuarylike environment that incorporates architectural elements resonant of the past and a lighting scheme that sets a calming emotional pitch. The Japanese firm Lighting Planners Associates collaborated with Kuryu in creating a lighting solution that not only articulates the facility's role in the community and enhances the atmosphere of serenity, but also amplifies the Memorial Hall's message of remembrance and peace.

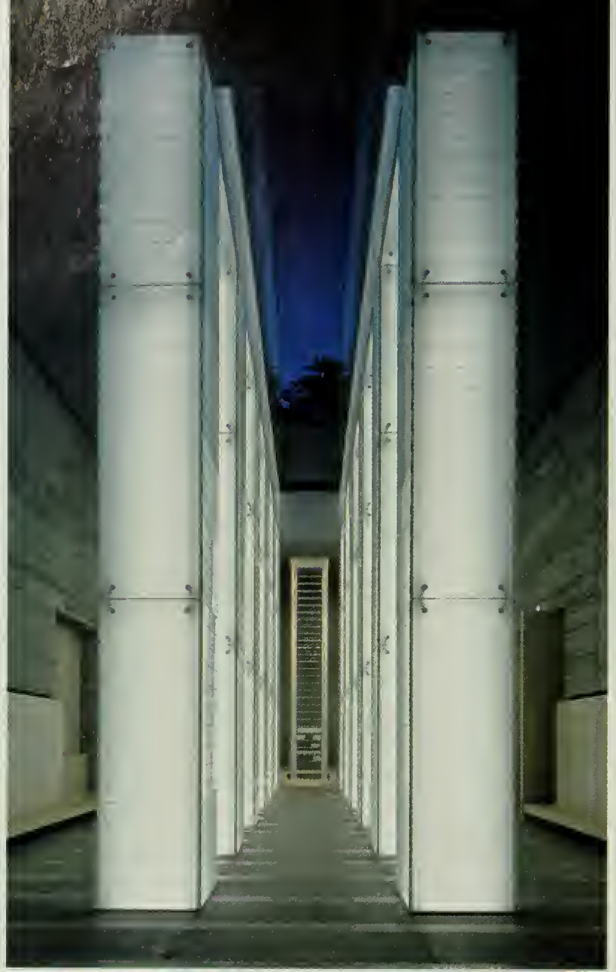
Erected on a site 820 feet away from the hypocenter of the bomb, the building consists of three levels: an exterior plaza with a sculpted basin on the ground floor and two subterranean levels devoted to prayer and the display of information and archival materials. Kuryu takes advantage of this close proximity to include symbolic features that heighten the visitor's experience. In the exterior plaza, a pair of glass walls internally lit with light pipes form a corridor oriented toward the hypocenter. The walls appear to rise from a sculpted basin conceived as an offering to the souls of victims. Since much of the population exposed to the bombing experienced extreme thirst, the basin overflows with water. The floor of the basin is embedded with 70,000 fiber-optic points of light to represent the number of Japanese who died in the aftermath by the end of 1945. Several mock-ups were conducted to pinpoint the spacing and alignment of the fiber-optic fixtures as well as the location of the illuminators. The fibers are lit with 52 150-watt ceramic-metal-halide lamps, which are concealed in the landscaping that borders the basin. According to lighting design principal Kaoru Mende, "Precision was critical in ensuring that a uniform brightness was achieved across the basin."

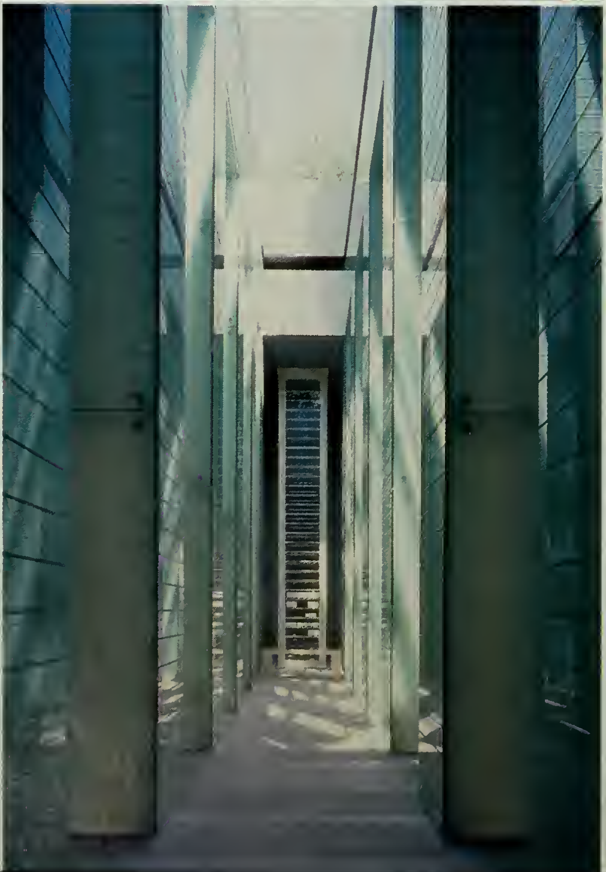
Although minimizing the disruption to a neighborhood largely comprising low-standing residences, Kuryu says locating the majority of the facility below grade was critical for fostering an atmosphere conducive to quiet prayer. The discreet illumination of circulation routes recommended by the Memorial Hall staff was equally important in maintaining spatial and emotional continuity. To access the interior spaces, visitors descend a flight of stairs lit with fluorescent striplights integrated into the handrail and downlights recessed in the ceiling. In



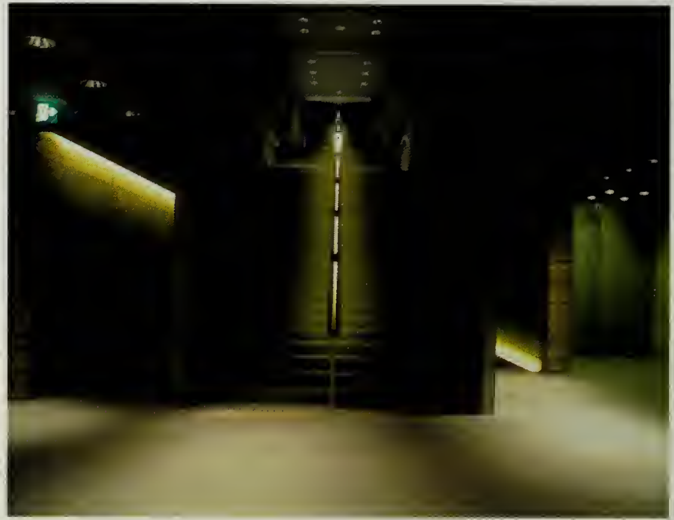
Illuminating the sculpted basin, which measures 98 feet in diameter and 2 inches in depth, fiber-optic fixtures are strategically spaced 1.5 inches apart to ensure consistency in brightness and easy access to illuminators for maintenance.

Project: *Nagasaki National Peace Memorial Hall for the Atomic Bomb Victims*
Architect: *Akira Kuryu*
Lighting designer: *Lighting Planners Associates—Kaoru Mende, lighting design principal*
Structural designer: *TIS & Partners*
Landscape architect: *Placemedia*





Visitors to the Memorial Hall are directed along suggested routes indirectly illuminated with fixtures concealed in ceiling and floor slots (below). In lighting the columns and the sculptural walls above ground (top and bottom left), the designers selected a glass cladding that was transparent enough to ensure uniform illumination yet opaque enough to conceal structural elements and fixtures. Both are lit with 4000K metal-halide sources.



corridors and throughout other spaces, walls are indirectly illuminated to provide ample ambient light while preserving the meditative quality of the architecture.

At the heart of the facility is the Remembrance Hall, a central space for prayer where two rows of six columns flank a corridor that leads to a registry shelf containing books of victims' names. The 29.5-foot-high columns extend the full height of the space, visually joining the walls in the basin above, and are similarly aligned in the direction of the hypocenter. During the day, a skylight situated between the exterior walls and over the corridor opens onto a view of the sky where the bomb exploded and allows daylight to penetrate the space. Adds Kuryu, "As visitors look up from this space of mourning, we wanted them also to experience through changes in daylight the passage of time." At night, equipped with light pipes lamped with 150-watt ceramic-metal-halide sources, the columns soar beyond the ceiling plane to become one with the exterior walls. Surrounded by twinkling lights, which Kuryu likens to the "floating souls" of the dead, the luminous forms represent the Nagasaki National Peace Memorial Hall's plea for peace. ■

LIT BY METAL HALIDES, COLUMNS SOAR. PLANES OF TWINKLING LIGHTS EVOKE THE "FLOATING SOULS" OF THE DEAD.

Sources

Optical fiber lamp: *Ryoko*

Light pipes: *Matsushita Electric Works (in basin); Yamada Shomei Lighting (light wall)*

Flow-line light: *Nippo Electric*

For more information on this project, go to Projects at **www.architecturalrecord.com.**

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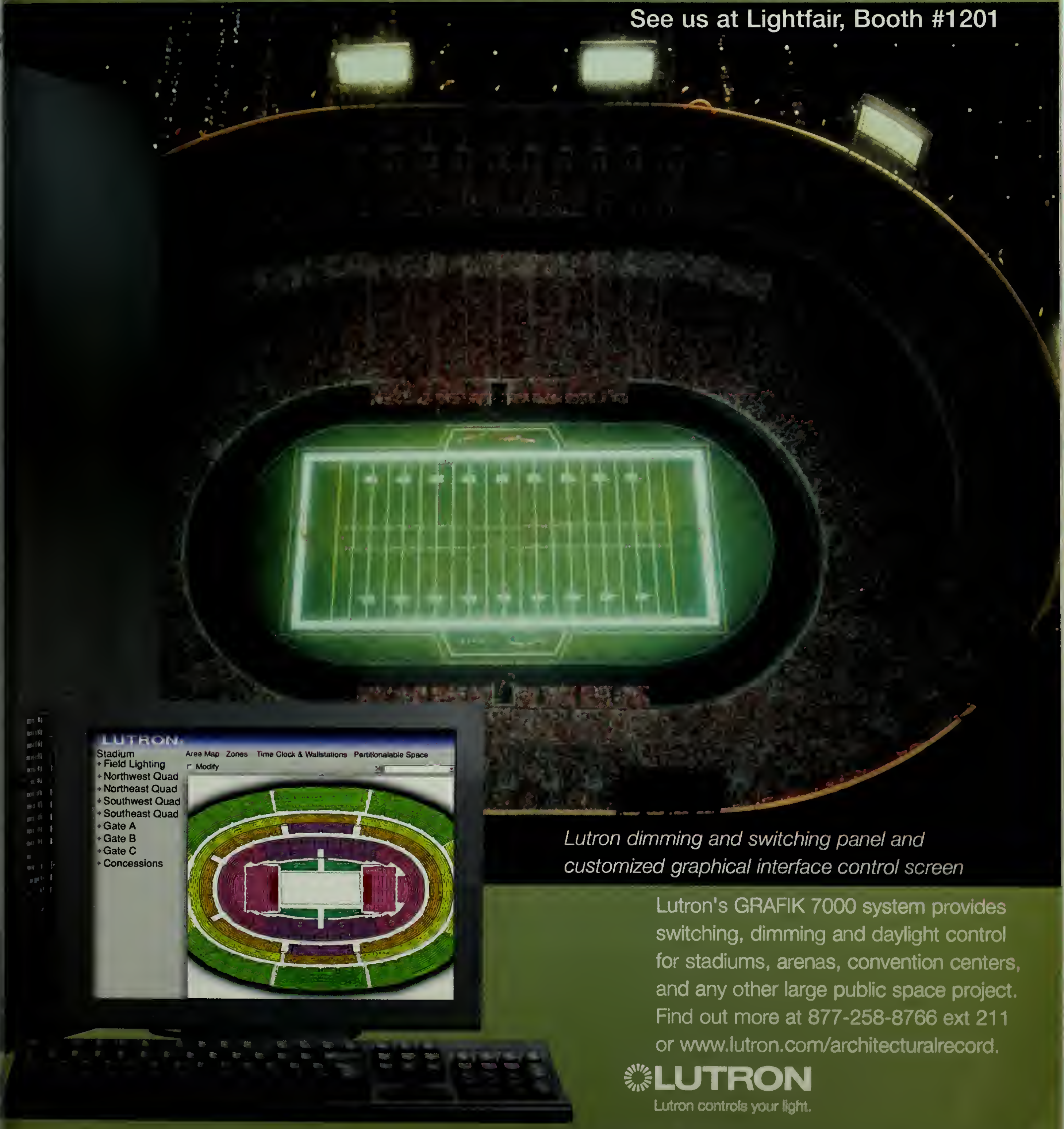

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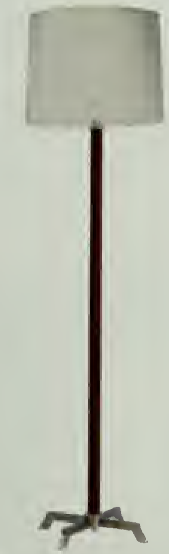
Lighting Briefs

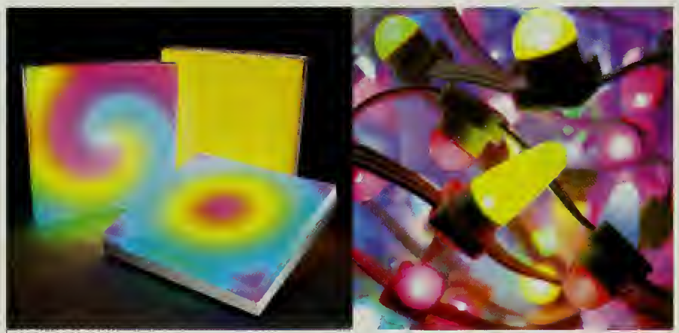
▼ Odor-busting bulb

Technical Consumer Products (TCP) claims their new compact fluorescent light bulb (below) eliminates odors from the air. This occurs when a special coating on the glass is exposed to fluorescent light and the photocatalytic reaction creates strong oxidizers that break down odors. TCP has also introduced the 289 series compact fluorescent lamp, the smallest CFL on the market, according to the manufacturer. TCP, Aurora, Ohio. www.tcpi.com **CIRCLE 200**



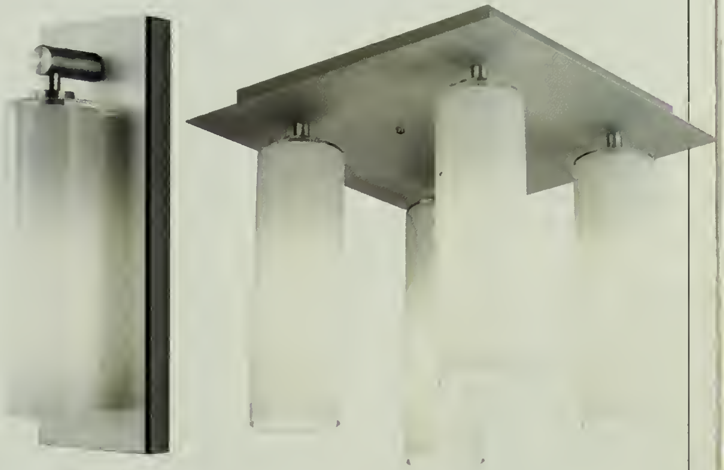
▲ Leather-bound luminaire

Bound in leather like classical works of literature, the Library Collection consists of two sconces, a table lamp, and a floor lamp. Suitable to residential, executive, hospitality, and institutional settings, the lamp is designed by Eric Brand, who has developed interior retail concepts for Chanel, Giorgio Armani, Coach, and others. Boyd Lighting Company, San Francisco. www.boydlighting.com **CIRCLE 202**



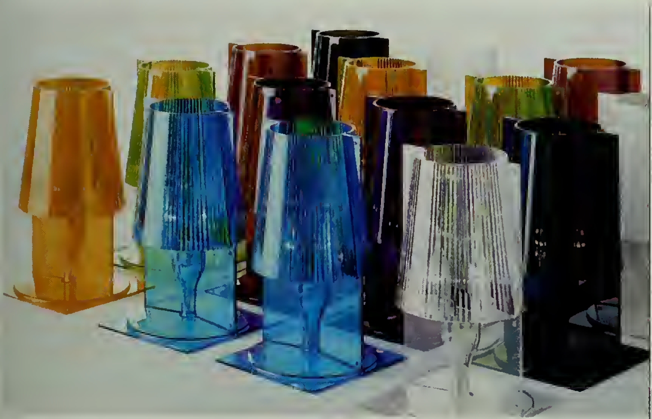
▲ Wildly colorful LED options

New from Color Kinetics, the iColor Tile FX (top left) works independently or as part of a large-scale, multitile installation. Each 2' x 2' panel incorporates 144 individually addressable tricolor nodes that are powered to create images with light. iColor Flex SL (top right) is a multipurpose LED-based strand, composed of 50 individually addressable tricolor nodes, that is available as an independent system or as a component for custom fixtures. Color Kinetics, Boston. www.colorkinetics.com **CIRCLE 201**



▲ Hitting on all cylinders

The Otto family of architectural fixtures is offered in several single- and four-cylinder models, including a single ceiling, single drop, four drop, single ADA wall (left), and four ceiling model (right). The hardware on all Otto models is clear anodized aluminum, and the fixtures use 13-watt compact fluorescent lamps and electronic "smart" ballasts. Special attention is taken in both blowing and coldworking the glass to achieve the Otto shade's shape. Resolute, Seattle, Wash. www.resoluteusa.com **CIRCLE 203**



▲ Another take on the bedside lamp

With the new Take Lamp, Kartell has interpreted the image of the classic bedside lamp in transparent or opaque polycarbonate. Kartell's clever design twist is that the shape seems to emerge from two facing sheets of polycarbonate, while a polycarbonate injection process allows for the clear delineation of the inner pleating of the lamp shape, giving a rich crystalline effect. Seven transparent shades and two solid colors are available. Kartell US, New York City. www.kartellus.com **CIRCLE 204**

▲ Singular dimming module

The Bak Pak IGBT dimming module mounts wherever a need exists for a single dimmer, eliminating the need for additional rack space. The Bak Pak dimmer weighs less than 2 pounds and mounts directly to existing stage lights, structures, or walls without special brackets or construction. Every dimmer has an onboard, intelligent processor that adjusts and maintains proper voltage and current. Entertainment Technology, Dallas. www.etdimming.com **CIRCLE 205**

For more information, circle item numbers on Reader Service Card or go to www.archrecord.com, under Resources, then Reader Service.

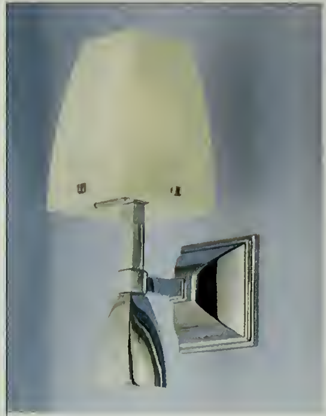
Lighting Briefs

▲ Good design at arm's length

Interior designer Peter Carlson created CL Sterling & Son lighting in response to what he saw as a lack of options and suitable products on the market. Carlson's contemporary lighting includes the 6 Arm Chandelier (left) and Silhouette Sconce (right) from the Archer Collection. Both fixtures are available in polished chrome, polished nickel, brushed nickel, architectural bronze, and brushed brass, as well as custom finishes. The chandelier is also available with four or eight arms, uses a 60-watt candelabra bulb, and features frosted glass shades. CL Sterling & Son, Lyme, Conn. www.clsterling.com **CIRCLE 206**

▼ Smaller family member

The ADA-compliant Aliante Demi-Sconce is designed to complement the full 4' and 5' tall sconces and pendants of the original Aliante family. Available in the same anodized and premium painted finishes, the sconce has been designed for either incandescent or 26-, 32-, or 42-watt compact fluorescent lamps in the 21" tall size and 42-watt lamps in the 27" tall size. Ivalo Lighting, Willow Grove, Pa. www.ivalolighting.com **CIRCLE 207**



▲ Built-in night light

The Quattro collection of sconce lights, mirrors, and bathroom accessories is available from the Ginger Design Group. The single sconce light has a night light in the bottom shade that can be operated independently of the main light by providing a separate hot wire and switch to the fixture. The collection will be offered in polished chrome and satin nickel. Ginger Design Group, Fort Mill, S.C. www.gingerco.com **CIRCLE 208**

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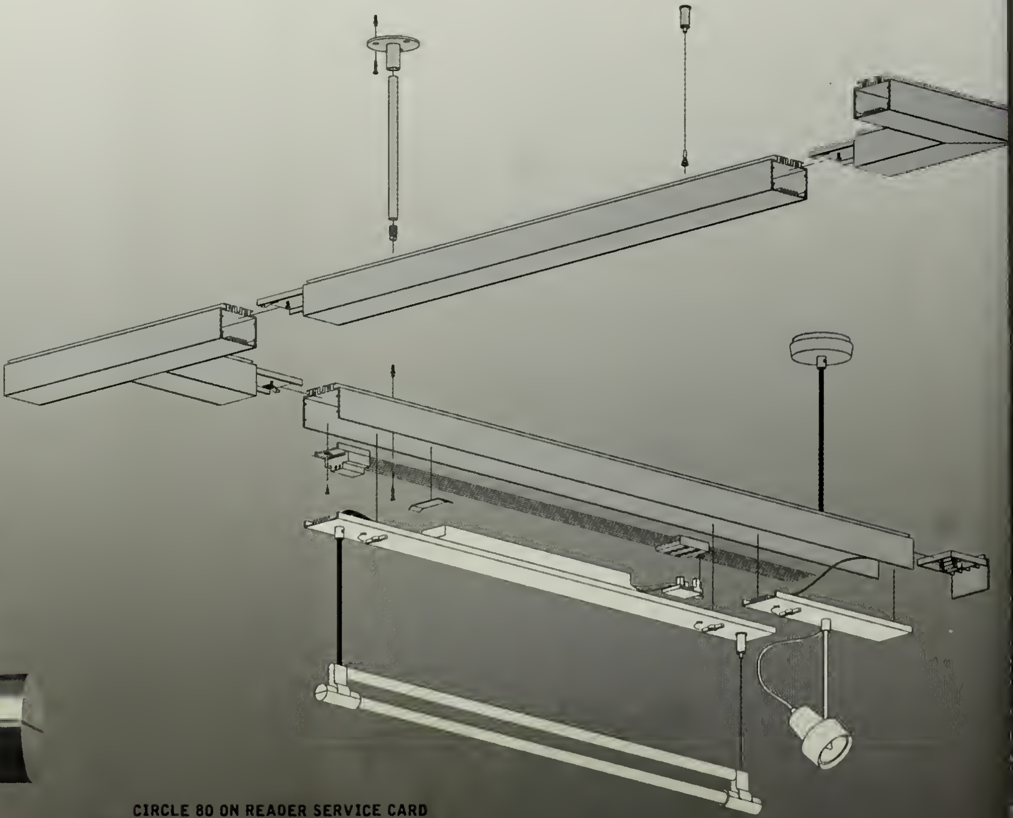

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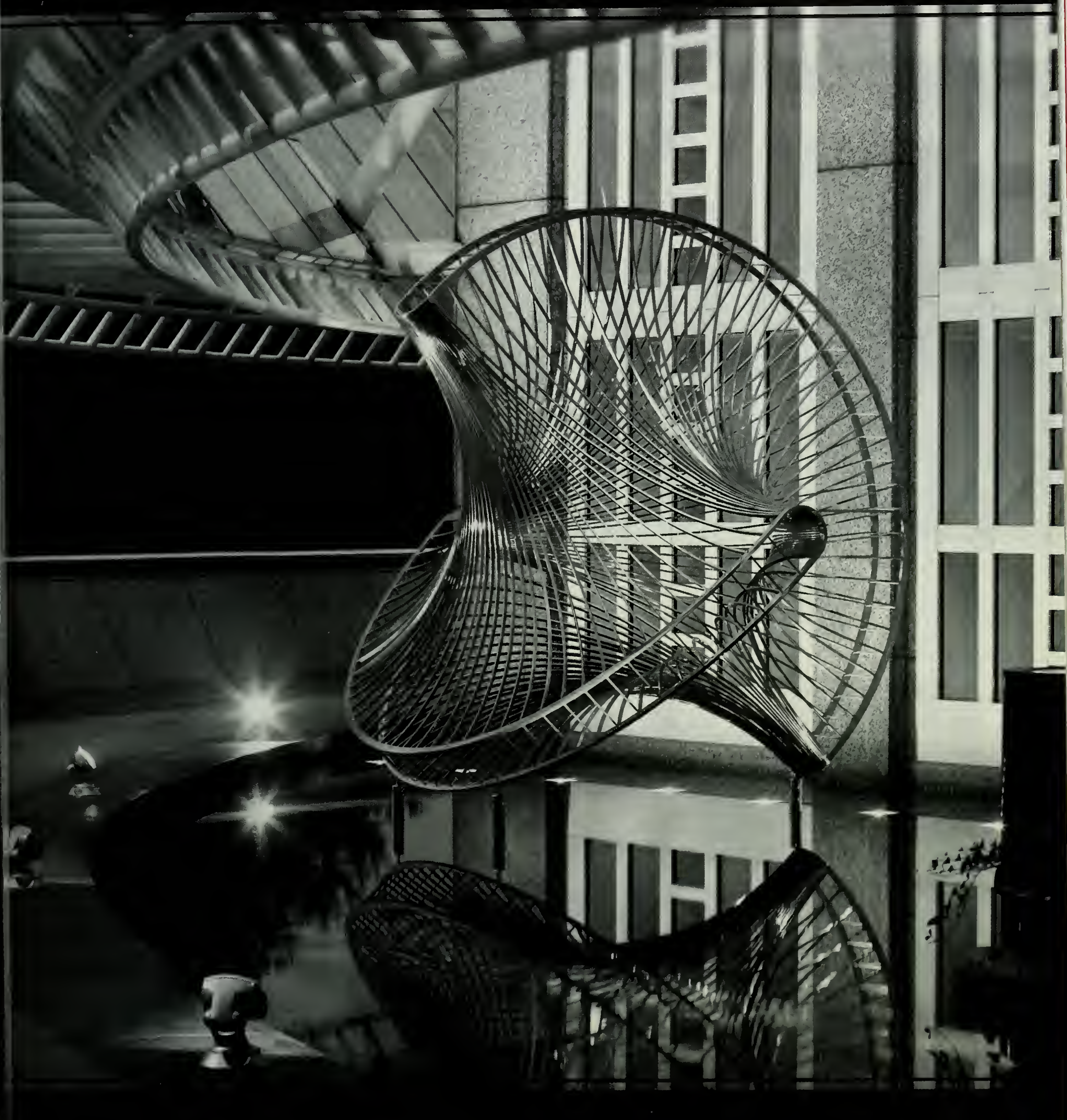

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Lighting Briefs

► Linear fluorescent tubes

Waldmann has launched a series of luminaires to the U.S., including RL Architectural linear fluorescent tubular lighting (right). The line is constructed with impact-resistant polycarbonate tubes and is ideal for indoor or outdoor locations, including train stations, airports, and parks. A variety of mounting brackets and suspension devices are available for both ceiling and direct wall mounting. Waldmann Lighting, Wheeling, Ill. www.waldmannlighting.com **CIRCLE 211**

◄ Table for two

The Spun Light (left), designed by Sebastian Wrong for Flos, features a diffuser screen of sandblasted pressed glass positioned at the top of a spun-metal diffuser. Spun is available as a table fixture in two sizes and four color combinations. Also new from Flos is Philippe Starck's Miss K table lamp, featuring a transparent polycarbonate diffuser finished with a high vacuum aluminum process. Flos USA, Huntington Station, N.Y. www.flos.net **CIRCLE 210**

▼ Traditional-style fixture

The new Providence period-style fixture from Architectural Area Lighting utilizes efficient lamp sources and electronic ballast options for longer lamp life and color correction. Optical systems include vertical and horizontal reflectors, as well as an indirect version for even, glare-free illumination. Emergency and egress lighting options are available for code compliance. Architectural Area Lighting, La Mirada, Calif. www.aal.net **CIRCLE 209**

▲ Diffused ambient lighting

The Encore ADA-compliant decorative wall sconce was designed by Peter Wooding, AIA, of Peter Wooding Design Associates. The sconces are characterized by tall, vertically oriented, cylindrical glass shades, framed by solid brass wall brackets. A choice of translucent acrylic or Imago rigid resinized fabric lens options is available. Nessen Lighting, Mamaroneck, N.Y. www.nessenlighting.com **CIRCLE 212**

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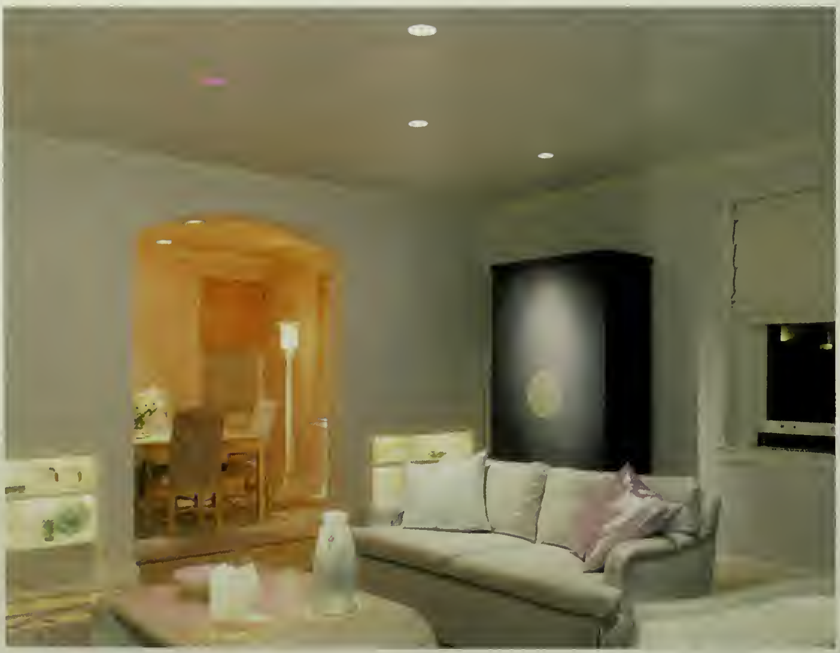

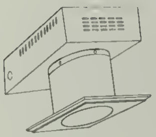

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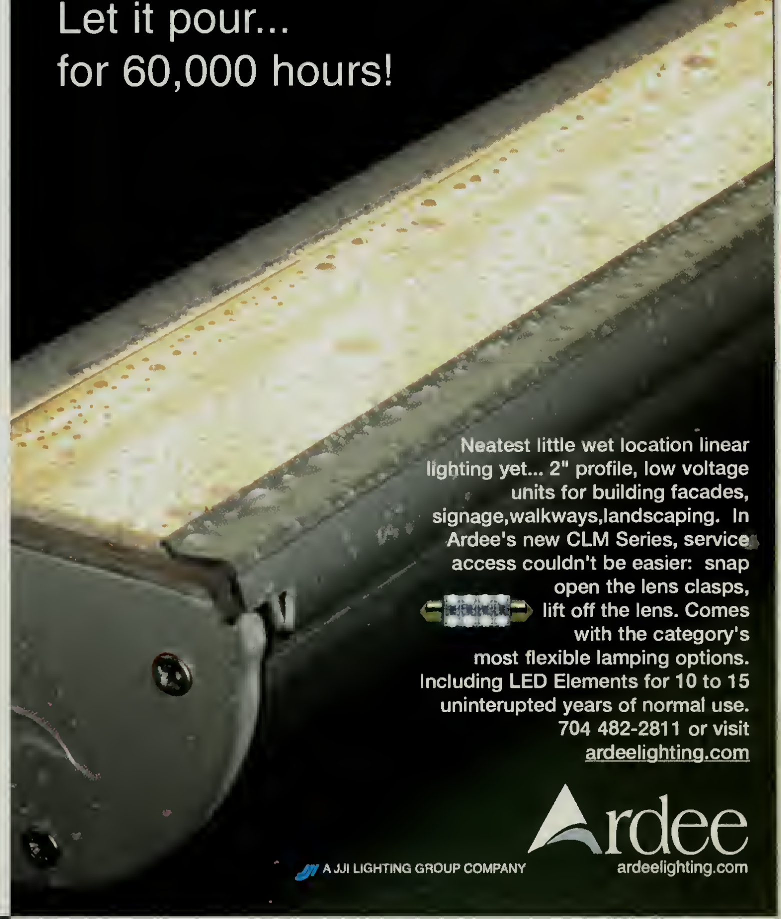

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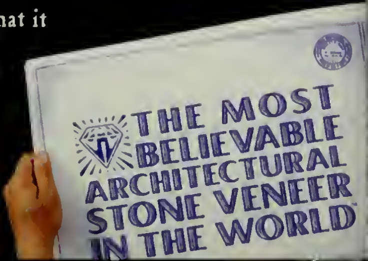
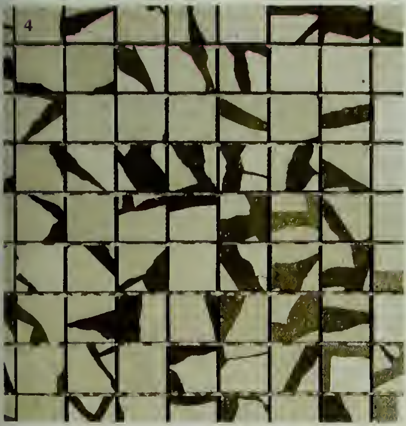


Products

Tile, Stone & Concrete

This month's focus on **tile, stone & concrete** includes the review of a trend-setting tile show held annually in Italy, featured below. Improved concrete casting methods, a **proposal for greener cement**, and stone mosaics and ceramic tiles inspired by retro or ancient looks, are also of note. *Rita F. Catinella*

"When you consider the size of a country like Italy relative to the U.S., the sheer number of Italian tile manufacturers is astounding," says architect Katherine Chia, of New York City–based Desai/Chia Studio. Chia, a former RECORD *Product Reports juror who attended the Cersaie exhibition of ceramic tiles and bathroom furnishings last year in Bologna, noted some dominant themes at the show, including tiles that imitate stone, concrete, and wide-plank wood flooring; morph into 3D shapes or mod '50s designs; feature funky color combinations; combine different materials (including glass and metal); and work as an exterior facade material. "Cersaie offers U.S. architects a tremendous resource in the tile market," adds Chia. "The benefit of attending the show is the ability to see and touch the material for yourself—there are subtle details in many products that can't be captured accurately in a photograph." Below are a few of her finds from the show. For more information about Cersaie, check out www.italiatiles.com. —R.F.C.*



Terra-cotta, ceramic, metal, stone mosaics—a range of materials for an architect's tile palette

1. When thick terra-cotta pieces are fired, oxygen does not reach the center, leaving that part the natural gray of the original clay. Vertically cut, the tile features a gray surface and terra-cotta-colored striping on its edges. Named Terra Serena, this listello is designed for finishing and decorative applications in outdoor or indoor areas. EX: Incorporated, New York City. www.exinc.org **CIRCLE 213**

2. and 3. The Esprit Nouveau collection from Viva Ceramica has a mod '50s attitude, including two types of dimpled white base tile that can be fitted with wildly patterned inserts. Sucré Salé, also from the collection, features an egg-shaped pattern floating on boldly colored backgrounds. Viva Ceramica, Hastings Tile & Il Bagno Collection, Freeport, N.Y. www.hastingstilebath.com **CIRCLE 214**

4. Arhea, a partner with Bi Marmi, offers the Textures Collection in materials ranging from stainless steel to marble. Shown above are Medmoma tiles combining white marble and bronze. Bi Marmi, Bisceglie, Italy. www.bimarmi.it **CIRCLE 215**

5. Xilo, another tile from Viva Ceramica, is a through-body porcelain that offers strong resistance to acids, scratches, frost, and dirt. Xilo is offered in five colors (black shown) and a pattern that imitates the strains of exotic wood. **CIRCLE 214**

6. The Progetto L14 collection, from Ceramiche Lea, is a modular tile system in four basic sizes. The Spy 3D tile is shown here in Paprika, one of nine matte and seven glossy colors. d.sherman@ceramichelea.it (U.S. manager). Ceramiche Lea, Chicago. www.ceramichelea.it **CIRCLE 216**

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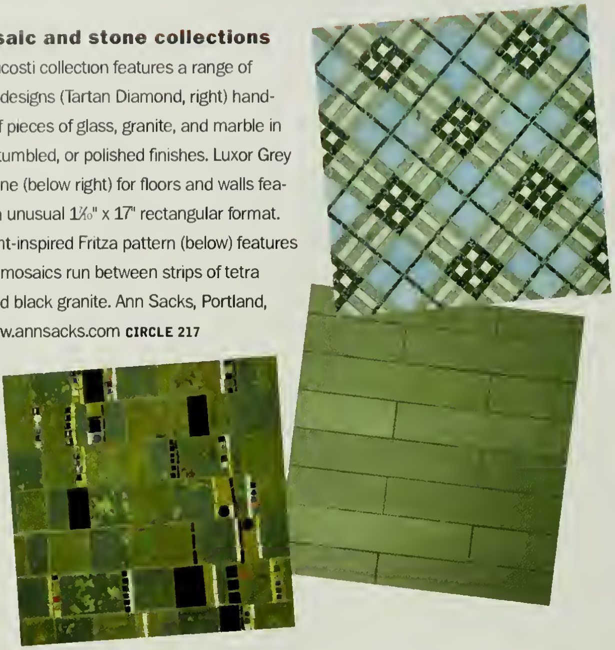
Products Tile, Stone & Concrete

▼ Mosaic and stone collections

The Anticosti collection features a range of mosaic designs (Tartan Diamond, right) handmade of pieces of glass, granite, and marble in honed, tumbled, or polished finishes. Luxor Grey Limestone (below right) for floors and walls features an unusual $1\frac{7}{10}$" x 17" rectangular format. The Klimt-inspired Fritza pattern (below) features colorful mosaics run between strips of tetra slate and black granite. Ann Sacks, Portland, Ore. www.annsacks.com **CIRCLE 217**



◄ Modern micromosaics

Walker Zanger's new collection of micromosaics, Antium, features decorative borders and dots made from tesserae—limestone and marble chips harvested along the southern shore of the Mediterranean in Tunisia. Artisans using a process unchanged from Roman times cut and fit each mosaic, fashioning both classic and modern motifs on a marble backing. The designs are suitable for most light commercial and residential applications, including backsplashes, wainscoting, showers, and floors. Walker & Zanger, Sylmar, Calif. www.walkerzanger.com **CIRCLE 220**

► Greener cement

The Portland Cement Association has outlined a proposal to allow for the inclusion of up to 5 percent ground limestone in the portland cement standard designated as ASTM C 150. The proposed change would bring U.S. standards up to those in Europe and Canada. The benefits include a reduction in the use of raw materials, and reduced energy consumption and greenhouse gas emissions. Portland Cement Association, Skokie, Ill. www.cement.org **CIRCLE 221**

► Reinforced cast concrete

Meld Extremeconcrete is an integrally colored, three-dimensionally reinforced concrete material that can be cast into an array of finished surfaces, furnishings, and accessories for interior and exterior applications. The standard thickness for countertops is 1½", and concrete slabs come in 7' long or 17 square foot maximums. Specifiers can choose from three finishes and 50 standard colors. Robin Reigi Art & Objects, New York City. www.robin-reigi.com **CIRCLE 218**

▼ Customizable concrete

Sonoma Cast Stone makes concrete countertops, sinks, fireplace surrounds, tiles, and pavers that are customizable based on color, edging, finish, and dimension specifications. A staff architect works with specifiers to achieve stove surrounds, hearths, mantels, or pillars that are solid, fireproof, and made to individual design specs. A modern surround by EJ Interior Design of Mill Valley, California, is shown below. Sonoma Cast Stone, Sonoma, Calif. www.sonomastone.com **CIRCLE 219**

► Ancient feel, ceramic tile

The Tuphos collection of glazed ceramic tiles from American Marazzi recalls the feeling of natural stone that has been buffed and polished by the Mediterranean climate. Field tiles and modulars are available in 13" x 13", 6½" x 6½", and 6½" x 13" sizes, three earthy colors, and distressed textures that offer built-in slip-resistance for traffic areas in homes or businesses. Inspired by ancient hand carvings, the collection's four fossil motifs are highlighted by sun images. American Marazzi Tile, Sunnyvale, Texas. www.marazzitile.com **CIRCLE 222**

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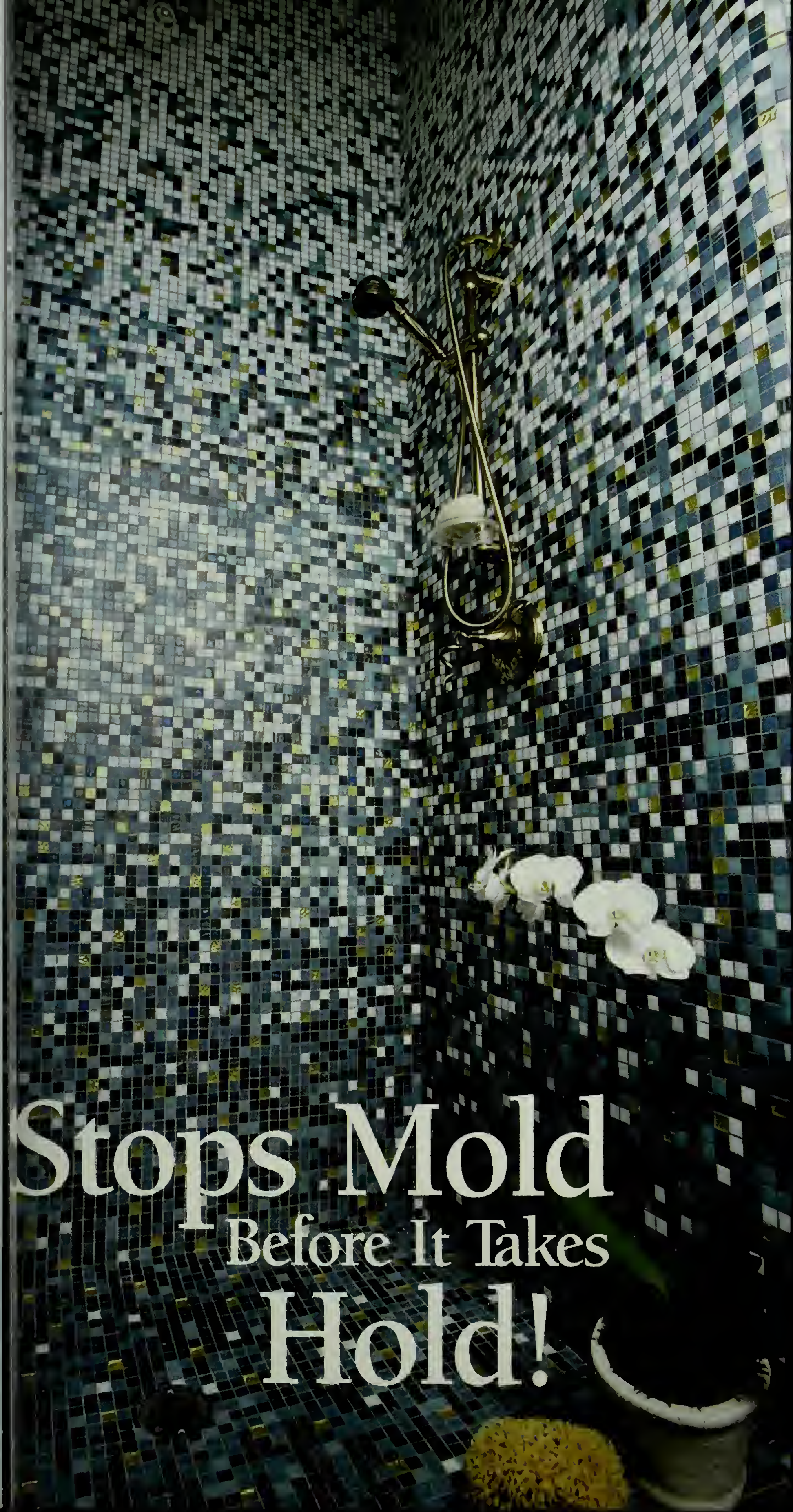

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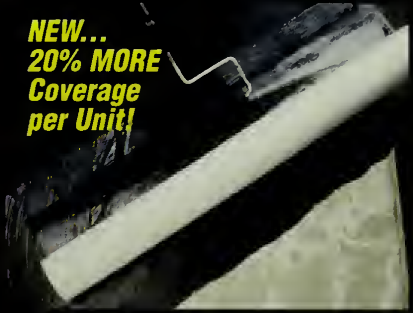

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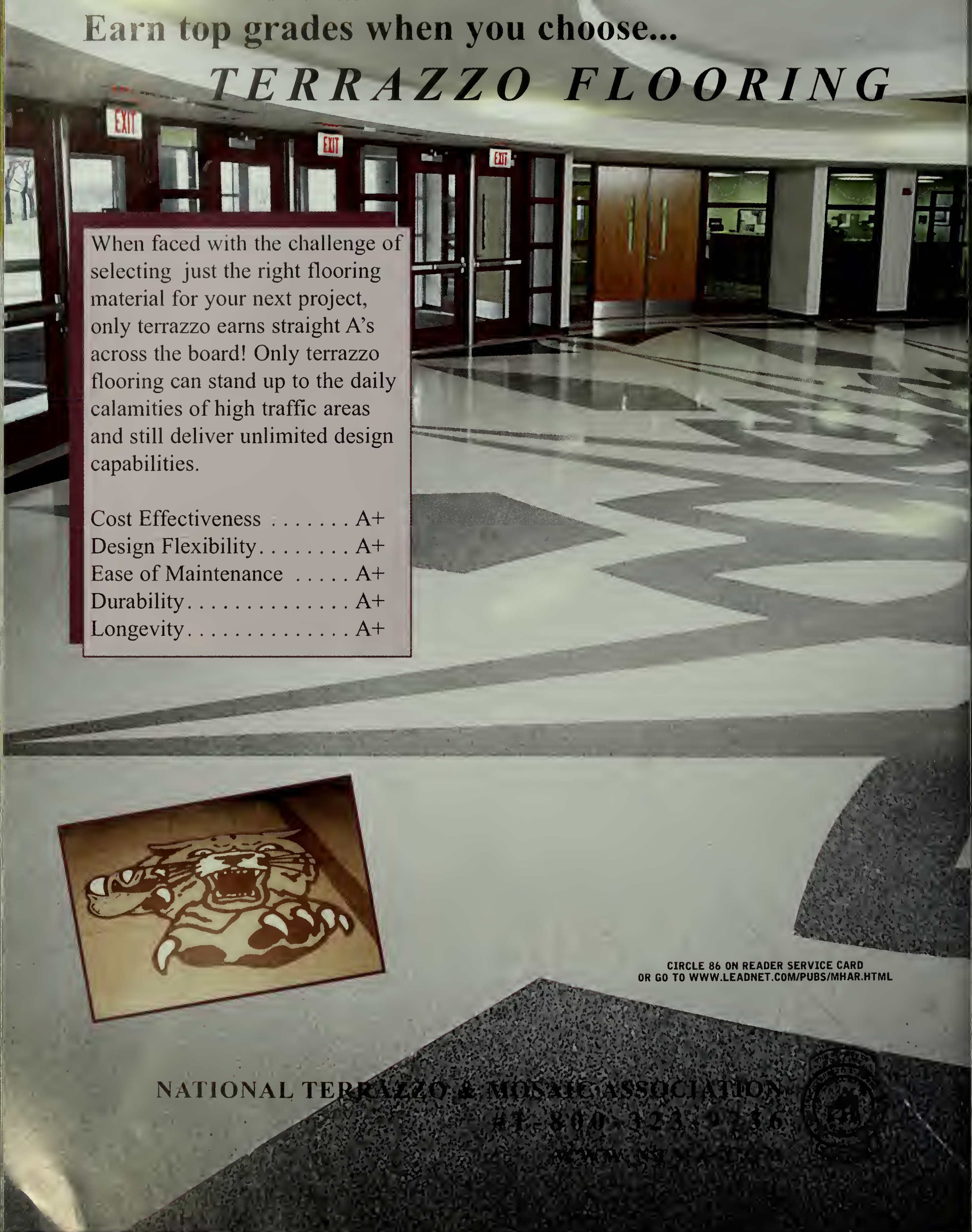

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Product Briefs

► The latest bold venture in upholstery

All three upholstery fabrics in Unika Vaev's new Venture Collection are made from 100 percent recycled polyester, produced from postindustrial recycled chips. Insight is an "effervescent" design of varied-size circles; Gizmo, woven from a bouclé yarn, features a "technological" pattern; and Mindscape has a texture that works as an alternative to a solid or a pattern. The patterns are designed by Unika Vaev's V.P. of Design, Dorothy Cosonas. ICF Group, www.unikavaev.com **CIRCLE 223**

◄ Veneer-faced trim

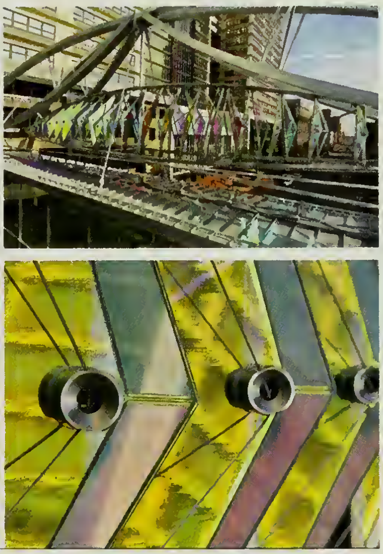
The S.J. Morse Company has introduced a new veneer-faced trim to provide an environmentally friendly alternative to solid wood. The company now offers the custom-made trim in six FSC-certified species—three domestics, oak, cherry, and maple; and three relatively unknown Brazilian species, Amapa, Taurari Vermelho, and Cupiuba. Cupiuba veneer trim is shown here in the lattice ceiling divider and on the kitchen walls. S.J. Morse, Capon Bridge, W.V. www.sjmorse.com **CIRCLE 225**

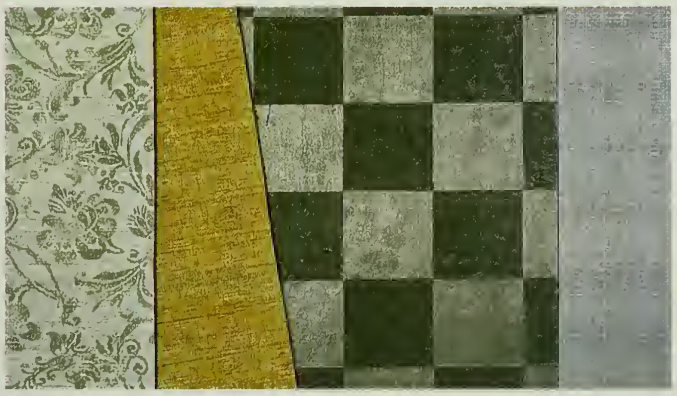
► *Real World* need for contract carpet

Durkan Commercial Carpet has a starring role in the current series of MTV's *Real World* reality TV show, set in San Diego. The show's producers converted a restaurant on the bay into living quarters and furnished it with approximately 1,300 yards of Durkan product in highly graphic and textural patterns for use in three bedrooms, a computer room, a gym/workout area, and the entry hallway. The Mohawk Group, Kennesaw, Ga. www.mohawkgroup.com **CIRCLE 227**

► Cultural bridge

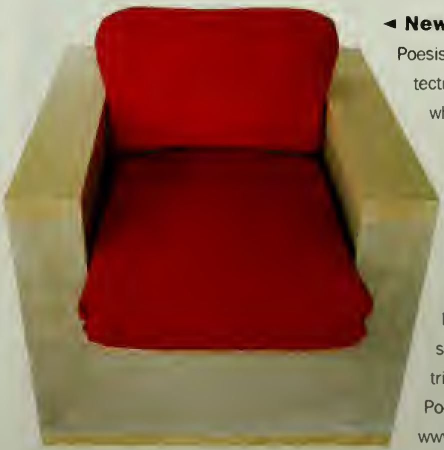
At Fourth and Main Streets in Louisville, Kentucky, there is a new pedway connecting the Galt House Hotel and the Kentucky International Convention Center. Serving as a public sculpture that is the gateway to the cultural district, the pedway is crowned by a glass sculpture composed of triangular sheets of dichroic glass that are supported by steel tubes and stainless-steel cables. Designed by glass artist Kenneth F. vonRoenn, Jr., the entire pedway was produced in six months. Architectural Glass Art, Louisville. www.againc.com **CIRCLE 224**





▲ Sophisticated surfaces

Wolf-Gordon has introduced 12 new designs of 54", Type II contract wall covering. This third volume of the company's Summit Collection contains a selection of Minimalist, tailored patterns that represent three significant design trends: "Soft Geometrics" that blend with different architectural styles; "Material World" patterns that simulate the visual textures of interior surface finishes; and "Textile-ish" designs that offer the look of fine wovens in a durable wall surface. Wolf-Gordon, Long Island City. www.wolf-gordon.com **CIRCLE 226**



◄ Newsworthy chair

Poesis is a husband and wife architecture firm/furniture design studio whose pieces can be found at the Philadelphia Museum of Art and in private collections. The firm's new Pulp chair is made of recycled newspaper blended with water and wax in a formaldehyde-free, closed-loop system. The sides are sanded to a velvety texture and trimmed with maple or walnut. Poesis Design, Norfolk, Conn. www.poesisdesign.com **CIRCLE 228**

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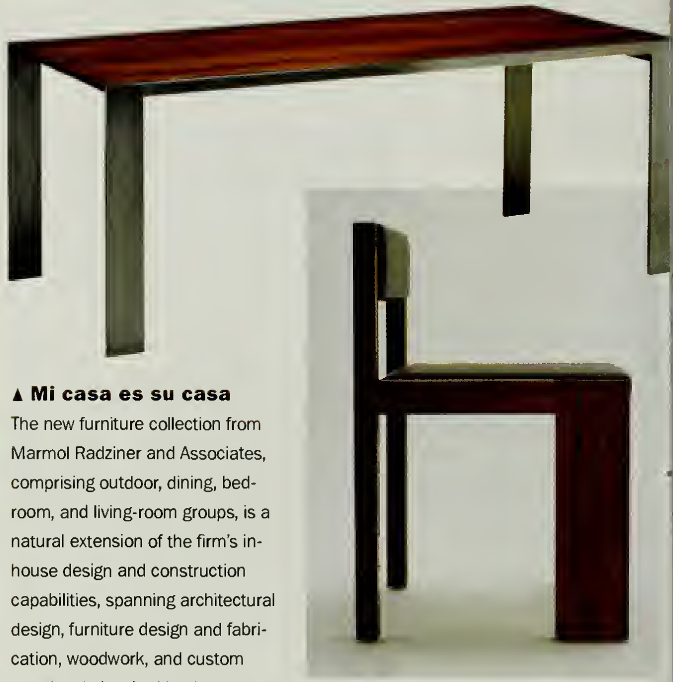
► 1.4-gallon flush option

Kohler's Cimarron Comfort Height toilet features Class Five technology to ensure a powerful flush. The commercial-grade toilet, designed for both residential and commercial use, offers chair-height seating, strong gravity-fed flushing power with a 3¼" flush valve, and the option of a 1.6- or 1.4-gallon flush. Over one year a family of four can save more than 2,000 gallons of water by using the 1.4-gallon setting instead of the 1.6 industry standard. Kohler, Kohler, Wis. www.kohler.com **CIRCLE 229**



▲ Mi casa es su casa

The new furniture collection from Marmol Radziner and Associates, comprising outdoor, dining, bedroom, and living-room groups, is a natural extension of the firm's in-house design and construction capabilities, spanning architectural design, furniture design and fabrication, woodwork, and custom metalwork. Inspired by the new Venice, California, home of the firm's design principal Ron Radziner, the collection reflects a palette of materials composed of stainless and blackened steel, teak, walnut, and fabrics. The collection is available exclusively at the Los Angeles midcentury-design showroom Twentieth. Twentieth, Los Angeles. www.twentieth.com **CIRCLE 231**

◄ User-friendly metal laminates

In cooperation with G.E.'s Plastic Division, Alsa has developed SheetingFX, a line of real metal laminates that can be applied as easily as contact paper, without any special tools or skills. A new process allows the laminate to be cut with scissors yet remain resistant to stains and scratches. Alsa, Vernon, Calif. www.alsacorp.com **CIRCLE 230**

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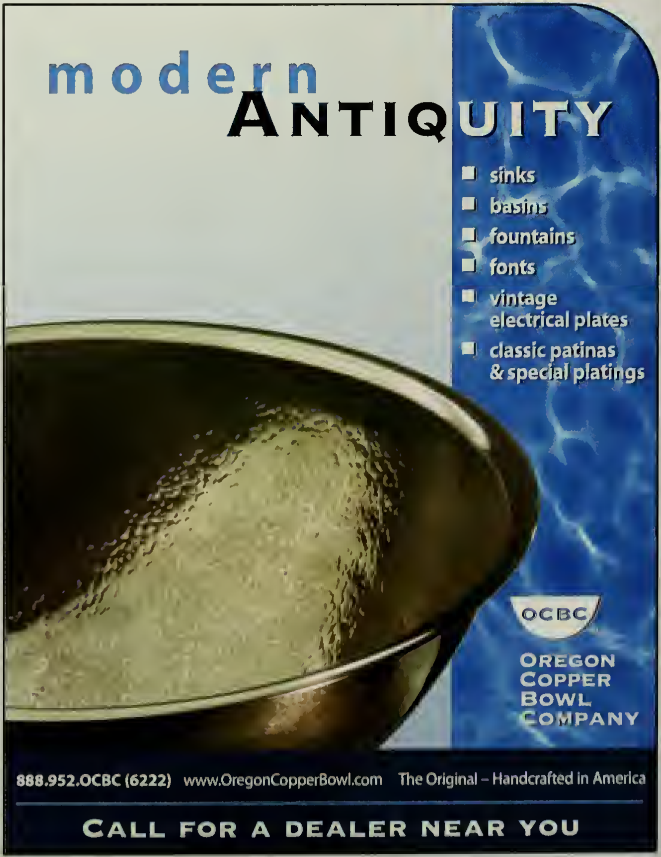

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Product Briefs

▲ Primed for protection

Tnemec has introduced Series 394 PerimePrime, a single component, moisture-cured, micaceous iron oxide (MIO), zinc-filled perimeter steel primer. Series 394 offers triple corrosion protection for perimeter steel, can be used under fireproofing, and bonds well to SSPC-SP3–prepared steel. Tnemec, Kansas City, Mo. www.tnemec.com **CIRCLE 232**

▼ Nonskid sandpaper finish

Nathan Allan's cast-glass floor panels can be tempered to increase the strength of the glass tenfold and are available in three combinations of multicolored Faux Finishes. Produced in ⅜", ½", ⅝", and ¾" thicknesses, the panels feature Nathan Allan's "Glass Sandpaper" safety finish on the top surface to help create a nonskid environment. Nathan Allan Glass Studios, Richmond, B.C. www.nathanallan.com **CIRCLE 233**

◄ Beacon of faith

With enough seats for 7,000 church-goers, the Prestonwood Baptist Church of Plano, Texas, is one of the largest in the country. The church officer's wanted a beacon to reach out to the community, and Skywall was selected to manufacture its ATS translucent skylight canopies, SW-250 translucent curved wall panels, and a translucent glazed door for the tower. Vistawall, Terrell, Texas. www.vistawall.com **CIRCLE 234**

► New colors and panel size for acoustic ceiling panels

Following last year's successful Techstyle ceiling panel launch, Hunter Douglas has added new products to the line, including two textile colors in off-white and black and a 2' x 6' panel format. The new panels feature the same acoustic properties and monolithic appearance of the original line, as well as the clip/hinge system that allows the panels to swing down for easy access to the plenum. Hunter Douglas Specialty Products Division, Broomfield, Colo. www.hunterdouglasceilings.com **CIRCLE 235**

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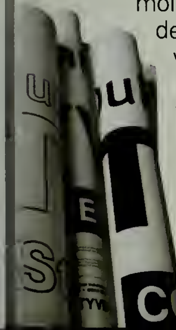

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Product Literature

Ballast brochure

Universal Lighting Technologies new ULTim8 product literature provides specification information, catalog numbers, wiring diagrams, and appropriate lamp applications. Universal Lighting Technologies, Nashville, Tenn. www.universalballast.com **CIRCLE 236**

Landscape lighting solutions

Lumière, a brand of Cooper Lighting, has published a 130-page color catalog entitled *Landscape Lighting Solutions*. It features low-voltage, line-voltage, and H.I.D. landscape lighting fixtures for a variety of commercial and residential applications. Cooper Lighting, Peachtree City, Ga. www.cooperlighting.com **CIRCLE 237**

Electronic resource library

BurkeMercer Flooring Products now offers their entire Architectural Binder on one CD-ROM. This electronic resource library includes product descriptions, color charts, specifications, product bulletins, installation and maintenance guidelines, and warranty information. BurkeMercer Flooring Products, Umatilla, Fla. www.burkemercer.com **CIRCLE 238**

NEW SITES FOR CYBERSURFING

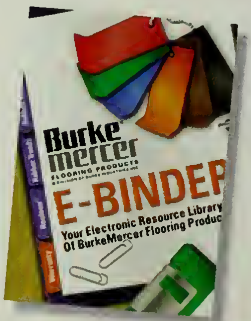
Interactive site educates users about Tsao's line of decorative lighting fixtures **www.tsaolighting.com**

Download Seamless Textures from Eldorado Stone to apply the stone profiles to 2D elevation, 3D perspective, or animation **www.eldoradostone.com**

The Coverings trade show, a showcase for ceramic tile and natural stone floor coverings, has reorganized its site for easier navigation, including seven trade areas **www.coverings.com**

Ornamental stone accents

Haddonstone has released its newest catalog for Arcadian Garden Features. The range includes more fountains and garden accents available in a choice of three colors. The water features include pumps, plumbing, and installation instructions. The fountains and garden accents are handcrafted in durable frost-proof cast limestone. Haddonstone, Bellmawr, N.J. www.haddonstone.co.uk **CIRCLE 239**



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Product Literature

Worktables brochure

Ahrend International's new brochure details the Ahrend 22 collection of modular, height-adjustable worktables by industrial designer Bas Pruijser. Photographs depict the range of tabletop shapes and leg heights available. Ahrend USA, New York City. www.ahrend.com **CIRCLE 240**

Cool roof catalog

A new 40-page, full-color catalog from Petersen Aluminum describes the company's complete line of architectural metal for roofing, mansards, and fascia. The catalog features a color chart illustrating the new line of PAC-CLAD Cool Colors that would meet Energy Star, LEED, and/or cool roof certification requirements for solar reflectance and emissivity ratings. Petersen Aluminum, Elk Grove Village, Ill. www.pac-clad.com **CIRCLE 241**

Retail lighting

Ardee Lighting now offers a brochure detailing the new Retail Rod, the company's self-illuminated linear rod lighting system for retail clothing displays. Detailed specifications and schematic drawings for surface-suspended and wall-mounted Retail Rod models are provided, along with ordering information for each. Information on available remote ballast modules is provided with photometric data. Ardee Lighting, Shelby, N.C. www.ardeelighting.com **CIRCLE 242**

Translucent daylighting ideas

Major Industries' updated translucent daylighting idea book features skylights, wall panels, curved systems, as well as other applications. The designs are illustrated with color photographs that depict both the inside and outside views, in a broad range of applications. Major Industries, Wausau, Wis. www.majorskylights.com **CIRCLE 243**

Access door binders

The Bilco Company, manufacturers of specialty access products, offers its new and expanded product line specification binders. The binders include detailed product specifications and drawings, product selection guidance, as well as complete information on product options and accessories. The Bilco Company, West Haven, Conn. www.bilco.com **CIRCLE 244**

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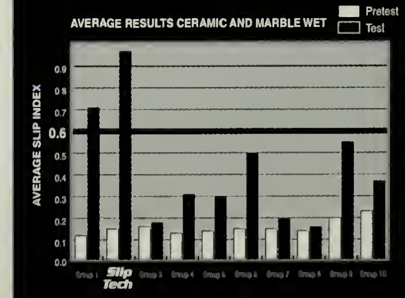

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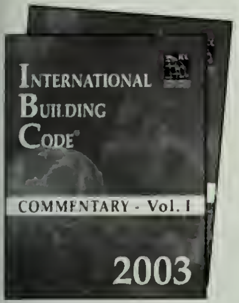

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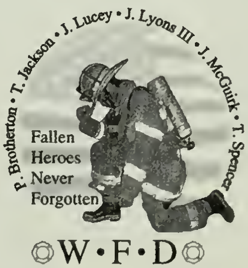
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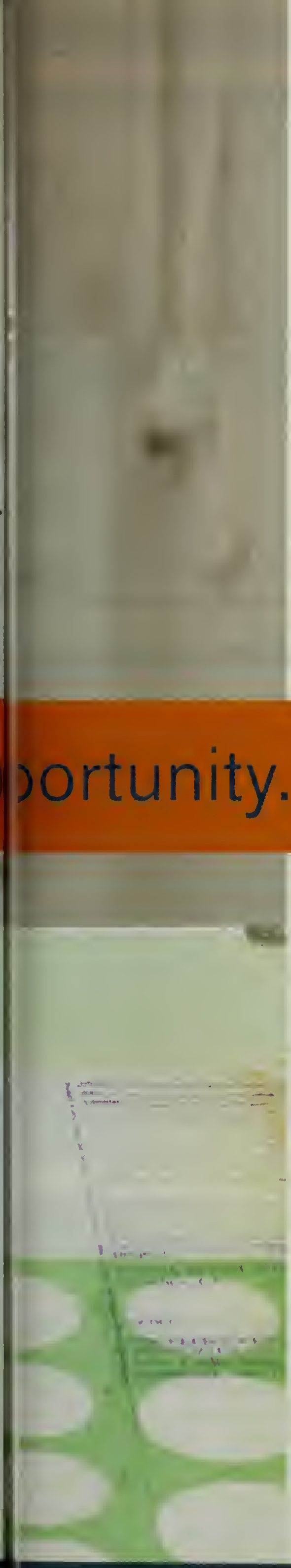

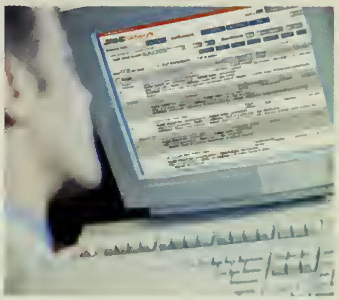

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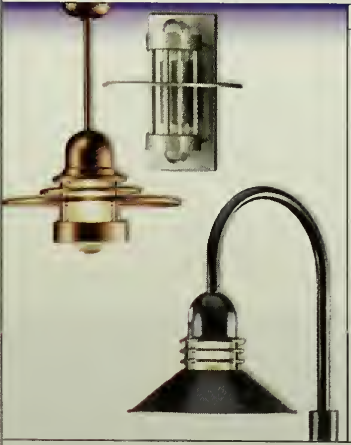

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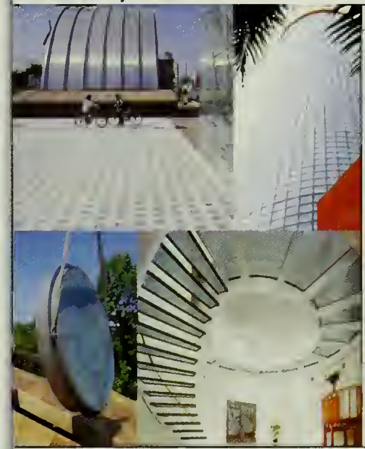


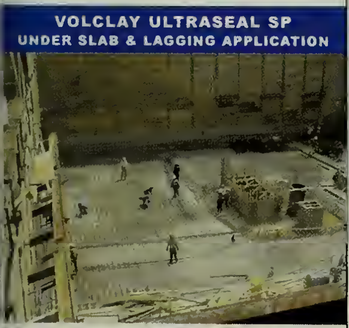
4 Masonry

Circle Redmont specializes in bringing natural light into spaces in extraordinary ways.™ Circle Redmont® custom manufactures fully engineered glass panel systems with proprietary setting materials and fabrication methods that have been developed and time proven over the last 40 years. As an expert in custom structural, specialty glazing, Circle Redmont's in house teams of designers, engineers, and craftsmen are ready to assist you from concept thru installation. With a resume of 40 years of satisfied customers and applications in the field, they know how to cost effectively achieve the look you want. Call them or visit their Web site.

www.circleredmont.com 160

CETCO

Below-Grade Waterproofing



3 Concrete

Volclay BPA is a technological advancement in below-grade waterproofing. This new technology combines natural sodium bentonite with a unique hydrophilic polymer to form a waterproofing membrane that is at least five times less permeable than traditional waterproofing systems. The BPA technology has exceptional chemical resistance, enhanced swelling properties, and weighs 60% less than traditional bentonite products, making it easier to handle and install. For more information, visit the Web site.

www.cetco.com 158

The Belden Brick Co.

Clay Brick Pavers | 330-456-0031

4 Masonry

Recognized as a national leader in the manufacturing of brick for over 100 years, Belden Brick offers an unmatched selection of genuine clay brick pavers with proven performance records under the most challenging climates conditions. When you choose Belden genuine clay brick pavers, architects don't have to sacrifice aesthetics for durability. Endless options including a choice from dozens of colors make it easier to design with style and elegance. For a perfect union of form and function, accent your next project with Belden genuine clay brick pavers.

www.beldenbrick.com 161

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Gage Corporation, Intl.

Cast Metal Wall Surfacing 800-786-4243

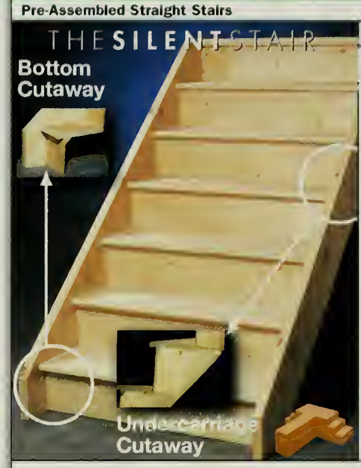
5 Metals

Gagecast® is a cast metal wall surfacing material suitable for a variety of interior architectural applications where patterns that feature high luster, relief, durability, and cost effective installation are a requirement. Twenty-four designs are standard, however, custom collaboration is encouraged. Gagecast is one component of Gage Vertical Surfacing. Contact the factory for product literature and selected samples.

www.gageverticalsurfacing.com ⟲ 162

Tangent Stair Manufacturing Inc.

Pre-Assembled Straight Stairs 807-577-8471



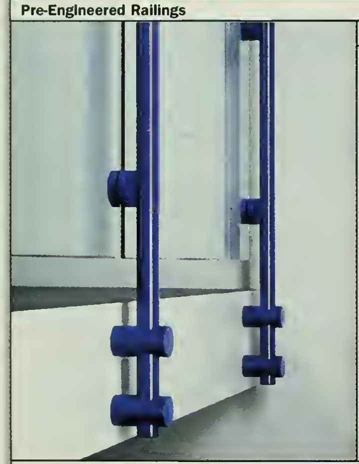
5 Metals

Tangent Stair Manufacturing Inc. offe pre-assembled straight stair syster for residential and commercial applica tions. Featured here is a utility stair bu with structural select spruce stringe and plywood tread and riser ready accept floor covering. Screws, glu wedges, and dovetail grooves make f solid construction and a virtual squeak-free system. A standard 14-ri unit weighs about 225-lb. and can easily placed in five minutes by two me

www.tangentstair.on.ca ⟲ 16

Handrail Design, Inc.

Pre-Engineered Railings 717-285-4088



5 Metals

HEWI nylon railing system: Add color and strength to your project with a nylon guardrail system. Nylon-coated railings come in a range of attractive colors and wood finishes. They provide exceptional structural strength, chemical resistance, hygienic qualities, and are virtually maintenance free. Infill panels are available in tempered glass and perforated metal. Handrails in colored nylon and solid wood. Standard and custom designs are available. Email info@hdirailings.com.

www.hdirailings.com ⟲ 163

Chadsworth's 1.800.Columns®

Columns, Pillars & Pilasters 800-486-2118

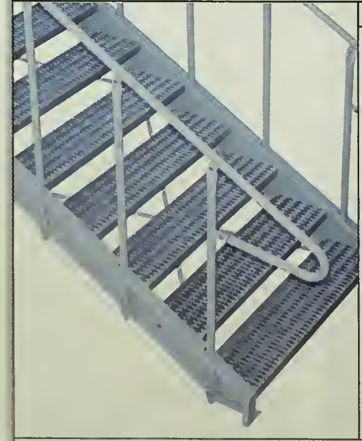
6 Wood & plastics

Chadsworth's 1.800.Columns is know as the best and most authentically co rect architectural column in the industr today. Offering a complete line columns, pillars, pilasters, and posts f both interior and exterior use, with plai or fluted shafts in a variety of sizes an styles. Columns are available in woo PolyStone™, fiberglass, and PVC. Ne product lines include the Bungalow, th PolyStone™ Premier Custom Collectio the PolyStone™ Balustrade Series, an Classic Pergolas. Chadsworth's awar winning Idea Book ($20) features a exciting collection of column project Free catalog. Chadsworth's 1.80 Columns add drama and definition a well as strength and durability to an design project.

⟲ 16

Lapeyre Stair Inc.

Convenient Conventional Stairs



5 Metals

In addition to its unique alternating tread safety-stair products, Lapeyre Stair now provides in-house design and fabrication of conventional industrial stairs that are designed and built to order. With proprietary computerized design capabilities and a facility dedicated to stair fabrication, Lapeyre Stair can offer unprecedented one-stop-shopping convenience, low prices, and lead times of three weeks or less. Check the Web site for conventional stair product updates and technical information, plus interactive features related to Lapeyre's Alternating Tread Stair: downloadable CAD files, online pricing, and more. In space-squeezed applications, the Lapeyre Alternating Tread Stair provides safer, easier access than vertical or ship's ladders.

www.lapeyrestair.com ⟲ 164

Melton Classics, Inc.

Architectural Products

6 Wood & plastics

Melton Classics provides the design pr fessional with one of the most compr hensive selections of quality architectur products in the industry, including archi tectural columns and cornice moldings balustrade systems; polyurethane mold ings, window features, and architectura elements; and cast stone balustrade and architectural elements. Architectura columns available in fiberglass, poly mer/marble composite, synthetic stone cast stone, GFRC, and wood for paint o stain. Columns available plain or fluted load-bearing or non-load-bearing, roun or square, in all designs and sizes. Melto Classics low-maintenance balustrades fo any application are available in syntheti stone, cast stone, polyurethane, fiber glass, and polymer/marble composite.

www.meltonclassics.com ⟲ 167

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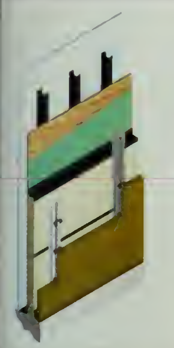
Boston Valley Terra Cotta Inc.

Terra Cotta Rainscreen

7 Thermal & moisture protection

Terraclad™

Terra Cotta Rainscreen System©



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- 13 standard colored clay bodies to choose from.
- custom body colors, glazed finishes and custom sizes and shapes upon request.

Manufactured in the USA by

Boston Valley Terra Cotta Inc.

New in 2004, Boston Valley Terra Cotta is manufacturing Terraclad™ Architectural Terra Cotta Rainscreen System. Produced in the U.S. in its Orchard Park, NY, facility, this system is available for new design and retrofit. BVTC offers two standard profiles and 13 standard colors. Upon request custom body colors, glaze finishes, and custom shapes and sizes may also be provided. Terraclad is naturally a "green" material. BVTC offers over a hundred standard extruded shapes as well as custom designs per the architect's specifications. Leaders in the design and manufacturing of architectural terra cotta, BVTC continues its legacy of recreating the past and building the future with the development of classic roof tile designs.

168

Eliason Corp.

Custom Doors 800-828-3655

8 Doors & windows

Eliason Easy Swing® Doors are manufactured for use in supermarkets, restaurants, drug stores, specialty stores, department stores, food service, and walk-in coolers. Choose from a variety of colors and options. The PMP-2 series is built for punishment from motorized equipment and pallet jacks without the use of spring bumpers. Custom manufactured to meet your specifications. Buy direct. Specify with confidence.

www.eliasoncorp.com 171

CertainTeed Corporation, Roofing Products Group

Shingles 800-782-8777

7 Thermal & moisture protection

Presidential Shake™ TL, with its sculpted rustic edges, is constructed using three laminated layers of the industry's strongest, most durable materials, making it one of the thickest, toughest, and best-looking shingles on the market. The beauty of a wood shake with less cost and better performance.

www.certainteed.com 169

VETROTECH Saint-Gobain

Fire-Rated Glass Walls 888-803-9533

8 Doors & windows

VDS FRAMING SYSTEM

The new VDS Framing System is based on European technology to provide a narrow profile, easy-to-install fire-rated solution to create "glass walls" with ratings of 60-min. or greater. Used in conjunction with SGG SWISSFLAM/SGG CONTRAFLAM, fire and safety rated glazing products, the VDS Framing System provides a transparent wall that acts as a barrier to radiant/conducted heat transfer. The narrow steel profiles are available either welded or knocked-down (K-D). Listed as a transparent wall, the combination of VDS Framing and SGG SWISSFLAM/SGG CONTRAFLAM allows for unlimited glazing area for use in location where the glazing exceeds 25% of the total wall area.

www.vetrotechUSA.com 172

EcoStar

Rubber Slate Shingles

7 Thermal & moisture protection

Majestic Slate is a rubber slate tile that is made of 100% recycled industrial rubber and plastic. Injection molded using a special formula that protects the integrity of the rubber; it offers an environmentally friendly, lightweight alternative to slate. The tiles weigh a total of 1.26-lb. each, alleviating stress to buildings and injury problems for applicators.

170

Weather Shield Windows & Doors

Premium Wood Windows

8 Doors & windows

Engineered with unique features and built for unparalleled performance, the Weather Shield Legacy Series is simply one of the best window and door lines available for custom and luxury homes. Available in tilt double-hung, casement, awning, and direct-set windows and French doors. The premium windows feature elegant wood interiors in a variety of wood species from Weather Shield's Custom Wood Interiors Collection™.

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Hyde Park Fine Art of Mouldings, Inc.

Architectural & Ornamental Plaster Moldings | 718-706-0504

9 Finishes

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www.hyde-park.com 174

Hufcor, Inc.

Movable Glass Partition Systems | 800-542-2371

10 Specialties

Hufcor introduces a complete new line of movable glass partition systems featured in a new brochure. The line features frameless storefront style panels with patent-pending batwing passdoors, acoustic and weather resistant glasswalls without floor tracks, wood-clad products, and electrically controlled E-Trac tracking system and Loschwand overhead systems. Call or visit the Web site.

www.hufcor.com 177

L.M. Scofield Company

Concrete & Cementitious Flooring | 800-800-9900

9 Finishes

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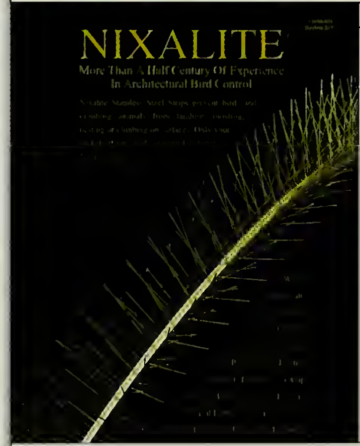
www.scofield.com 175

Nixalite of America, Inc.

Architectural Bird Control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10 Specialties

Nixalite® is a UV-proof physical bird barrier that outlasts and outperforms other steel, plastic, chemical, or electrical bird control devices. Nixalite stainless steel bird control strips provide effective, long lasting, and inconspicuous control of pest birds on any structure. Only Nixalite has installations that are 50-plus-years-old and still providing perfect bird control. EnduraNet is a knot-free, twisted, and Z-locke square mesh bird netting. This ultra-strong polyethylene bird netting has 2 individual cords that are interwoven to give the netting superior strength. Z-lock mesh means that the netting maintains a square mesh without knots that can slip or bind, reducing the netting strength. EnduraNet's 51-lb.- (23.2kg) per-strand tensile strength is one of the highest in the industry.

www.nixalite.com 178

Concealite Life Safety Products

Fire Appliance Fixture | 507-825-2907

10 Specialties

Make those necessary design evils, such as fire appliance fixtures, disappear. Conceal-Alarm fixtures allow your design to take center stage. While an alarm appliance is deactivated, it hides behind a door decorated to blend in with your wall. Upon activation, Conceal-Alarm rotates 180°, revealing the strobe and/or horn appliance for patrons to see and hear. Once the emergency has passed and the system is deactivated, the Conceal-Alarm will return to the closed position, once again revealing your design. For more information or specification sheets on Conceal-Alarm, visit the Web site or call.

www.concealite.com 176

In House

Pocket Chair/Barstool | 323-655-2116

12 Furnishings

Winner of the 2001 Good Design Award, the most prestigious award in the design industry, the Pocket Chair is in the permanent collection of numerous design museums. It has been used to great acclaim in commercial and residential projects by major architectural firms, and why not? The In House design team of Zuckerman/Lawton has produced a sublime chair that is not only beautiful and comfortable but comes with a pocket perfect for holding menus, newspapers, or you name it. Available in limited colors or larger custom runs can be made in custom color-matched Bayer Macrolon. Three sizes: chair, counter stool, bar stool.

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New Holland Church Furniture

Ecclesiastical Furniture 800-220-1465

12 Furnishings

Curved pews are "Round For A Reason"™ and are designed and manufactured by New Holland Church Furniture. Curved pews are designed for maximum seating, curved for efficient use of space, designed to enhance worship, created for community uniting the family of God. New Holland Church Furniture is a certified member of the Architectural Woodwork Institute (AWI) so you can be assured of the very highest quality.

180

Smith & Hawken

Lounging Furniture 800-423-0117

12 Furnishings

Like all of its famous Premium Teak™ furniture, Smith & Hawken crafts new Avignon™ Lounging with traditional mortise-and-tenon joinery that stays rock-solid. Though patterned after formal indoor pieces—with gentle arches, rounded fin edges, and scrolled arms—Avignon's weather-deflecting teak construction allows it to remain outdoors year-round without care. Whether specified for a residential patio or commercial hospitality setting, the extra-thick, Sunbrella®-covered cushions provide guests with a luxurious level of comfort. Premium Teak is ecologically harvested from Javanese plantations—making it a sound environmental choice. Ask about substantial discounts offered to Trade customers.

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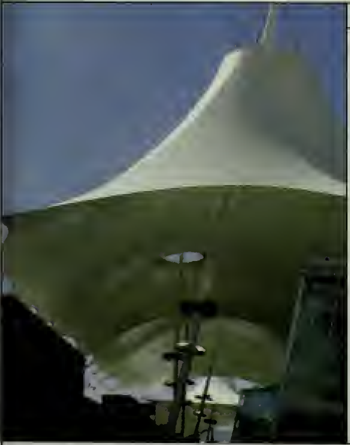
FabriTec Structures

Tensile Fabric Structures 866-275-9710



13 Special construction

Fabritec Structures introduces a new generation of tensile fabric technology. Its highly specialized fabric structures utilize the most advanced architectural materials available and are non-combustible, both thermal- and UV-resistant, and can offer full weather protection. With virtually unlimited design options and applications, FabriTec's products are both practical and often visually spectacular. Designers can choose fabrics from a wide range of color and translucency and enjoy a cost effective and "fast-track" alternative to conventional building systems. FabriTec Structures provides clients with complete design/build services, including concept development, engineering, fabrication, project management, and installation.

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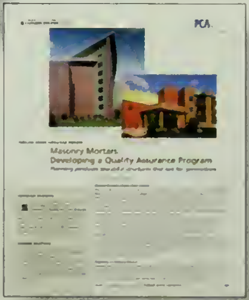

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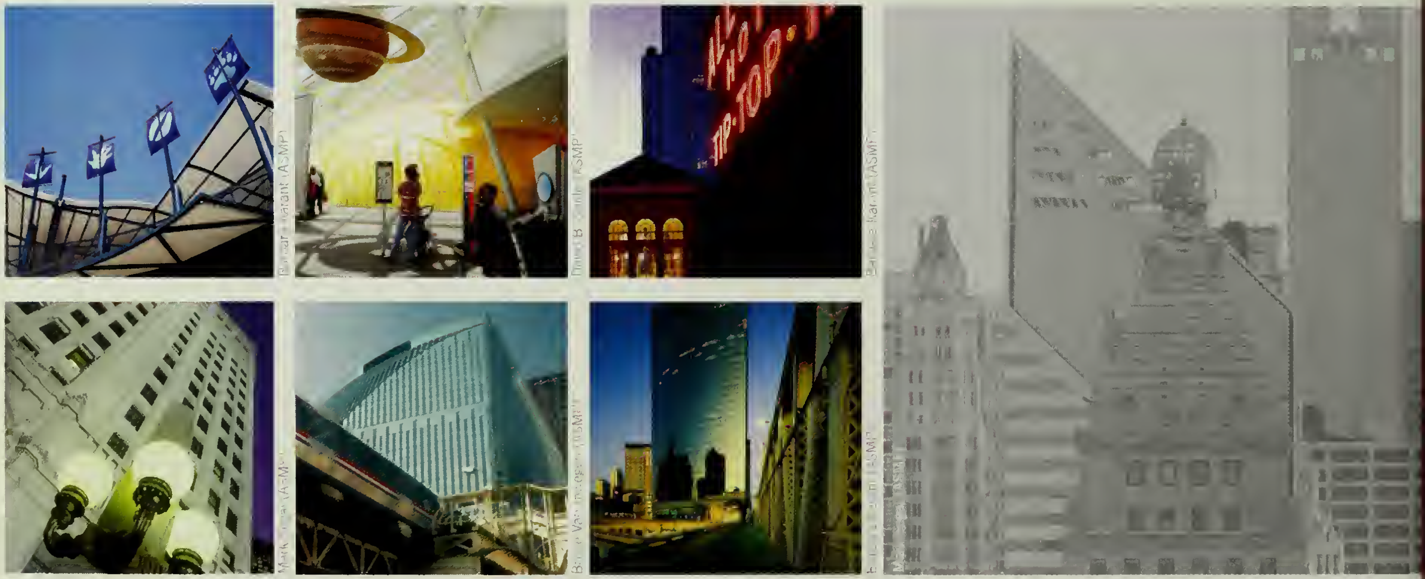

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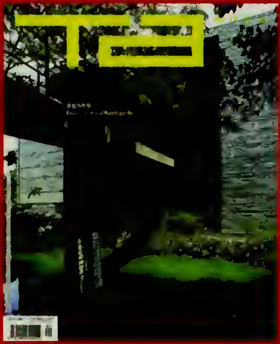

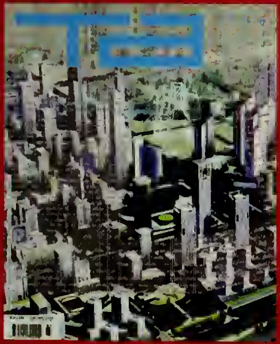

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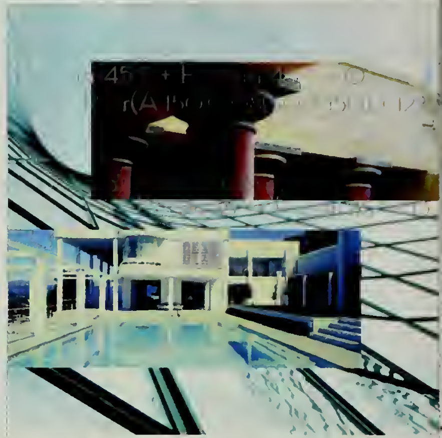

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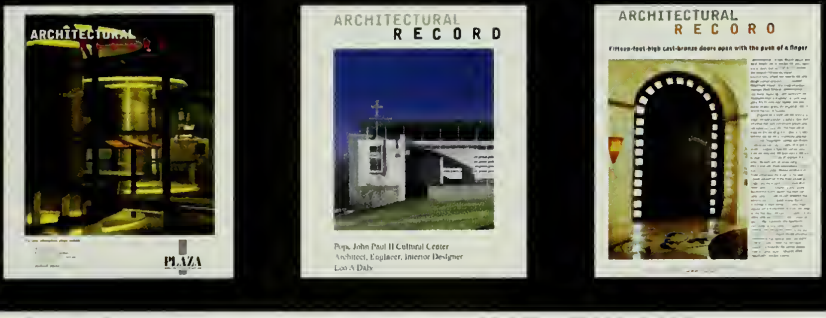

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Profile

Yan Huang: Beijing's Olympic planner

Interviewed by Clifford A. Pearson

As the director of the Planning & Construction Department for Beijing's winning bid for the 2008 Olympics, Yan Huang helped bring home a prize that China had long coveted. Now, as the deputy director of the Beijing Municipal Planning Commission and deputy director of the Olympic Venue Development Coordination Commission, she has to make sure that the political victory turns into a physical reality and contributes to Beijing's long-term development as a modern capital with a remarkable historic core. Trained as an architect in China, Belgium, and the U.S., Huang is currently spending a school year at Harvard University as a Loeb Fellow.

Q: *What is your biggest challenge in terms of the Olympics?* As a planner, I need to make sure that not only are the Olympic facilities built on time and with the best quality design, but that they work as part of our long-term strategy for the development of Beijing. Like cities in the United States, Beijing needs to balance private and public development pressures, control sprawl, and upgrade our infrastructure. With the Olympics, our goal is to integrate the sports venues with other projects such as housing, hotels, retail, offices, convention facilities, and museums. We want to make really good urban areas, not just for the duration of the games but for the long term.

Were there any particular models you used for your Olympic plans? For us, one of the most successful Olympic models was Barcelona. They brought in new thinking, the best foreign architects, and made Barcelona a more global city as a result. The long-term impact on the city has been very positive. Sydney, on the other hand, did a great job creating a place for the games, but is having trouble making it work afterward because the site [Homebush Bay] is so far from the rest of the city.

What are some of the key challenges for Beijing as a whole? We need to create regionwide solutions to urban growth. Just as with American cities, we have many different jurisdictions within the greater municipal area, and each one has its own perspective and needs. Car ownership in Beijing has been growing 25 percent annually in recent years and traffic problems are getting very bad. During the past three to five years, we have made a huge investment in highway construction, but now we need to increase our public transportation system. We have four or five subway lines under construction right now and are building light-rail lines out to the suburban areas.

What has it been like spending a year at Harvard? It has been great. At home, I always feel like a fireman, dealing with whatever is most urgent at that moment. But here I've been able to think about the big picture and what's really happening in Beijing—what has been successful, what hasn't, what can we improve. There are a lot of differences between the U.S. and China in terms of economics and politics. But the urban challenges in both countries are actually quite similar.

What are some of the key things you've learned this past year? I've learned to look at the whole picture. It can be very dangerous for Chinese cities to copy directly from urban development in America. There are some things we can learn from, but some that we should avoid.

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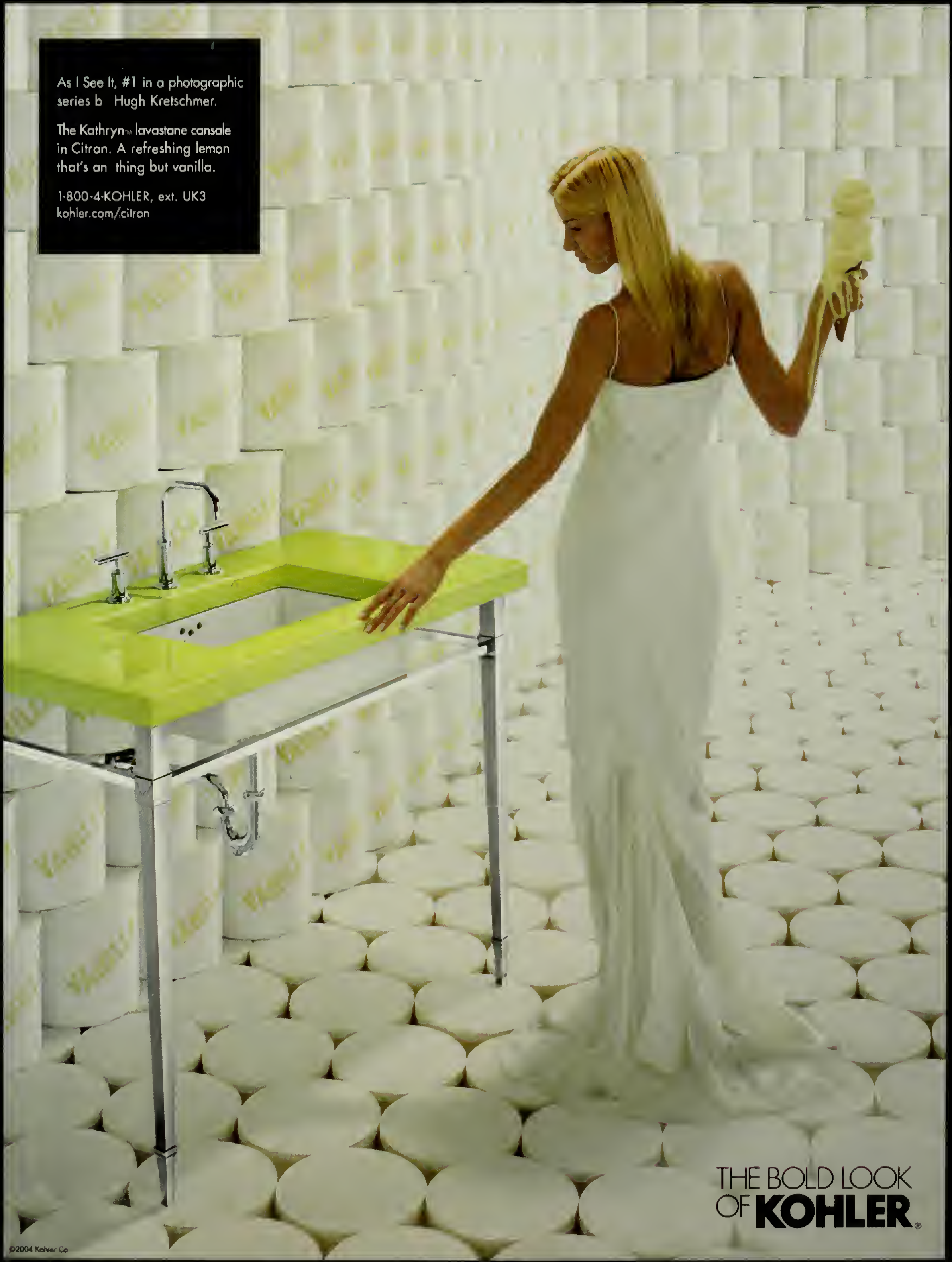

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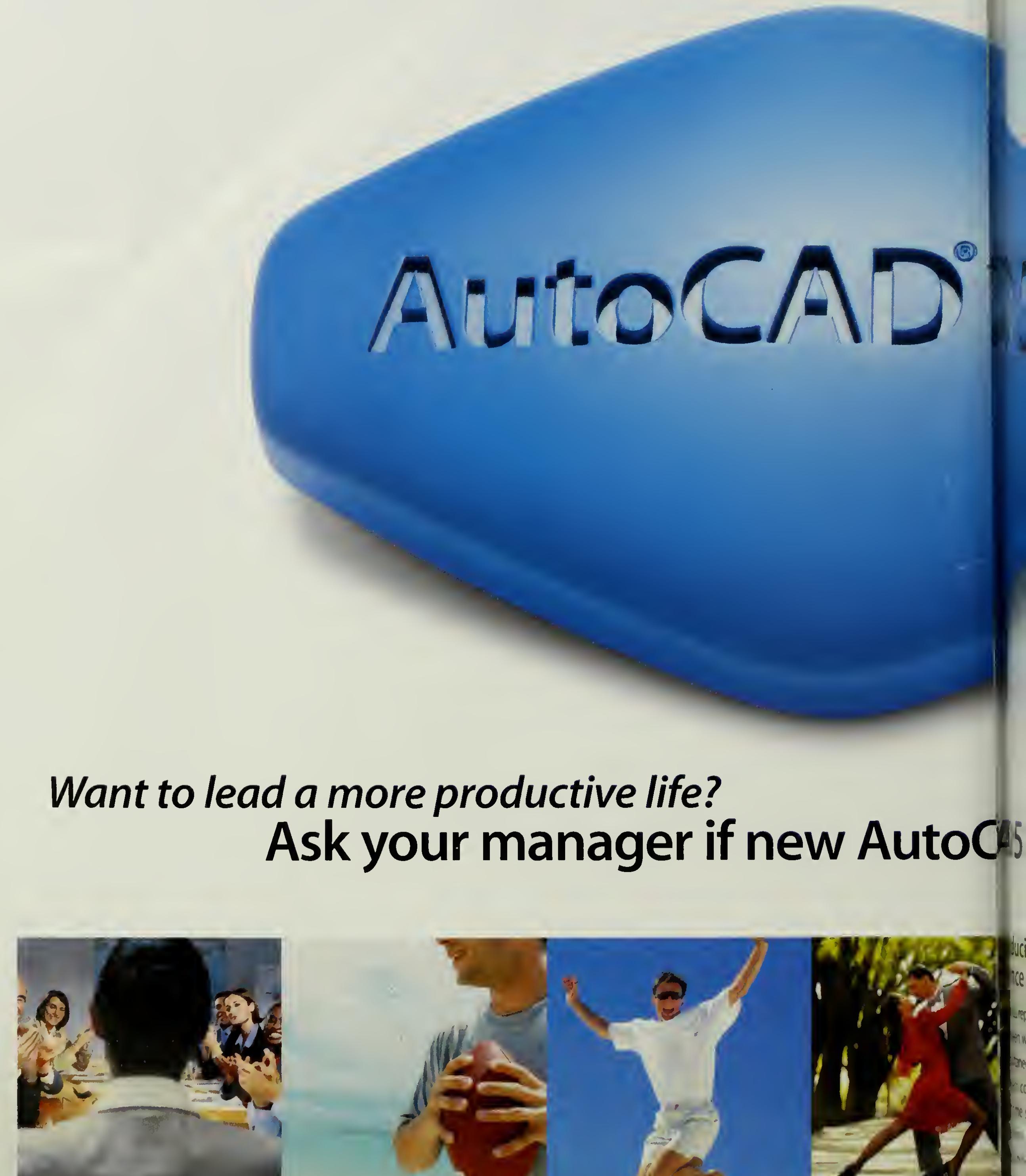

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New AutoCAD 2005 is potent medicine that relieves all of the above symptoms with a single application. How? you might ask. For the first time, new AutoCAD 2005 has Sheet Set Manager, which lets you create, manage, and share entire sheet sets simultaneously. It lets you work smarter and faster because it automates many of the tedious tasks that slow you down. Such as archiving, transmitting, creating, and updating the sheet index; creating tables, sections, and callouts; and placing and updating title block and page number. In other words, it lets you create intelligent sheet sets that automatically update themselves and radically reduce revisions.

There are many other cool features in AutoCAD 2005, like background printing and one-click publishing and plotting. These features alone are going to save you lots of time. Of course, since you'll be able to keep working while you're plotting, this may cut down on the number of coffee breaks. But the Surgeon General is asking us all to cut back on the caffeine anyway. Personally, after about four cups we can feel our scalp sweat, and we start to seriously lose our patience with others.

But we're getting ahead of ourselves. Chances are you're still using AutoCAD 2002 or an earlier version, so you've yet to experience the extraordinary performance of our last release, AutoCAD 2004. How good was it? Well, don't take our word for it. This is what Robert Davis of the Benchmark Group says: "AutoCAD 2004 . . . has the greatest and most compelling set of new features, functions, and enhancements of any AutoCAD release I have worked with. I think this release will be a must-have upgrade for every AutoCAD user." Taken together, the performance enhancement you'll get from these last two releases will blow you away. Almost every design and drafting task is simpler, easier, and faster, no matter what kind of work you do.

Possible Side Effects

With new AutoCAD 2005, you're going to be finishing tedious tasks much faster, so you can spend more time on the more rewarding aspects of your work. That means you'll probably be happier. You'll also be more productive, so people might think you're taking one of the drugs they advertise in those weird pharmaceutical commercials on TV. How are you supposed to know if you need the stuff if they don't tell you what it's for? One more thing—if you're using AutoCAD 2005 and the people around you aren't, another side effect may occur: performance envy. Because when everyone else sees how much faster you're completing routine tasks, they can't help but be annoyed. Who could blame them?

Precautions

Of course, there is the issue of what to do with your new free time. If you're the sort of person who gets into trouble easily, you may want to channel all your efforts into work. Who knows, you may be running the place in a couple of months. However, if you often find yourself choosing dinner from the office vending machine, we recommend you avoid the tuna sandwiches.

Perhaps you'd prefer to channel your newfound energy into home improvement. You could probably use a new redwood deck. Maybe a natural stone patio. You could redo the family room and make room for a big-screen TV. In the interest of fairness, you might remodel the kitchen and install one of those professional, stainless-steel stoves the size of an aircraft carrier. They're great for reheating pizza. Or you could dig up the entire backyard and turn it into a replica of Monet's Giverny gardens.

Or maybe you're an active, virile individual like Bob (shown in the photos at left) and will be spending a lot of time outdoors. If so, the Surgeon General recommends that you protect your skin from the sun's harmful UV rays. Use a sunscreen of SPF 30 or higher. Apply every three hours. When hiking, be sure to take along plenty of water and nutritious snacks. Some plants and roots are edible, but you have to know which ones. Generally speaking purple is good, red is bad. Unless it's the other way around. Nobody plans to get lost when they start out on the trail, but these things happen. So a compass might not be a bad idea and maybe a rain poncho, which can be used for shelter. And don't forget the snake bite kit. In any case, be careful out there. And if you've read this far, your persistence is remarkable. Either that or you have too much time on your hands already. So maybe you should get started on that deck right away.

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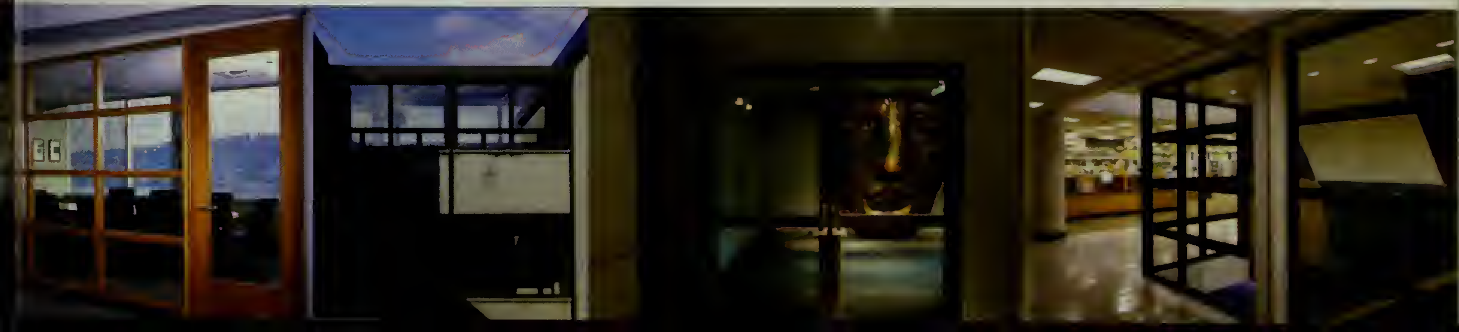

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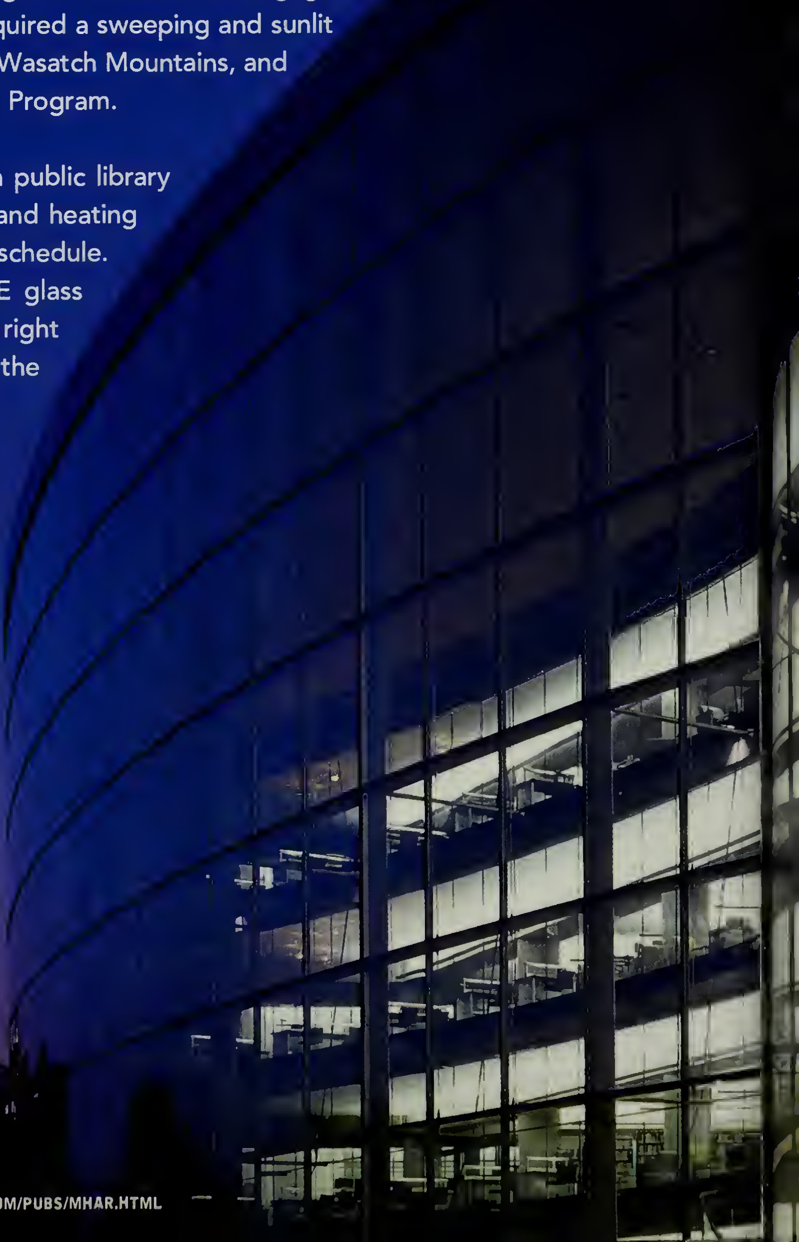

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You can find these stories at **www.architecturalrecord.com**, including expanded coverage of Projects, Building Types Studies, and Web-only special features.

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April 2004

Casa Equis / Photography © Jean Pierre Crousse

Building Types Studies
Record Houses

Make yourself at home in the 49th Annual Record Houses section. Experience the best in contemporary design from the coasts of Brazil and Japan to the wooded sites of Atlanta and Vienna. Find more plans, specs, and photos of these houses on our Web site.

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Project Portfolio

This month, in a web exclusive, we feature unbuilt houses. All six residences will be built in the weekend retreat area of Sagaponac, NY. See what design-savvy architects like Shigeru Ban, Hariri & Hariri, and the late Samuel Mockbee have envisioned for future housing in Eastern Long Island

Daily Headlines

Get the latest scoop from the world of architecture.

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Continuing our Houses theme, this month we look at two concepts for truly alternative housing. In the RemoteHome, architect Tobi Schniedler connects two homes with internet-linked sensory and kinetic devices. Austrian firm AllesWirdGut has an altogether different spin on housing. On our site we have more photos and interactive features of these unique housing ideas.

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China

Check out our special section dedicated to the recent surge of new architecture in China. Many Chinese cities are attracting locally and internationally known architects to enhance their skyline. We dig deep into our China coverage with young architects' projects and other firms' upcoming projects. Be sure to explore China with photo essays by editors of *Architectural Record*.

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Products

This month come see what's new in our product focus on windows and doors. Also, read our trade show review of the Cologne Fair in Germany. You'll also find Product of the Month, more trade show reviews, and updates to our Green Product Guide.

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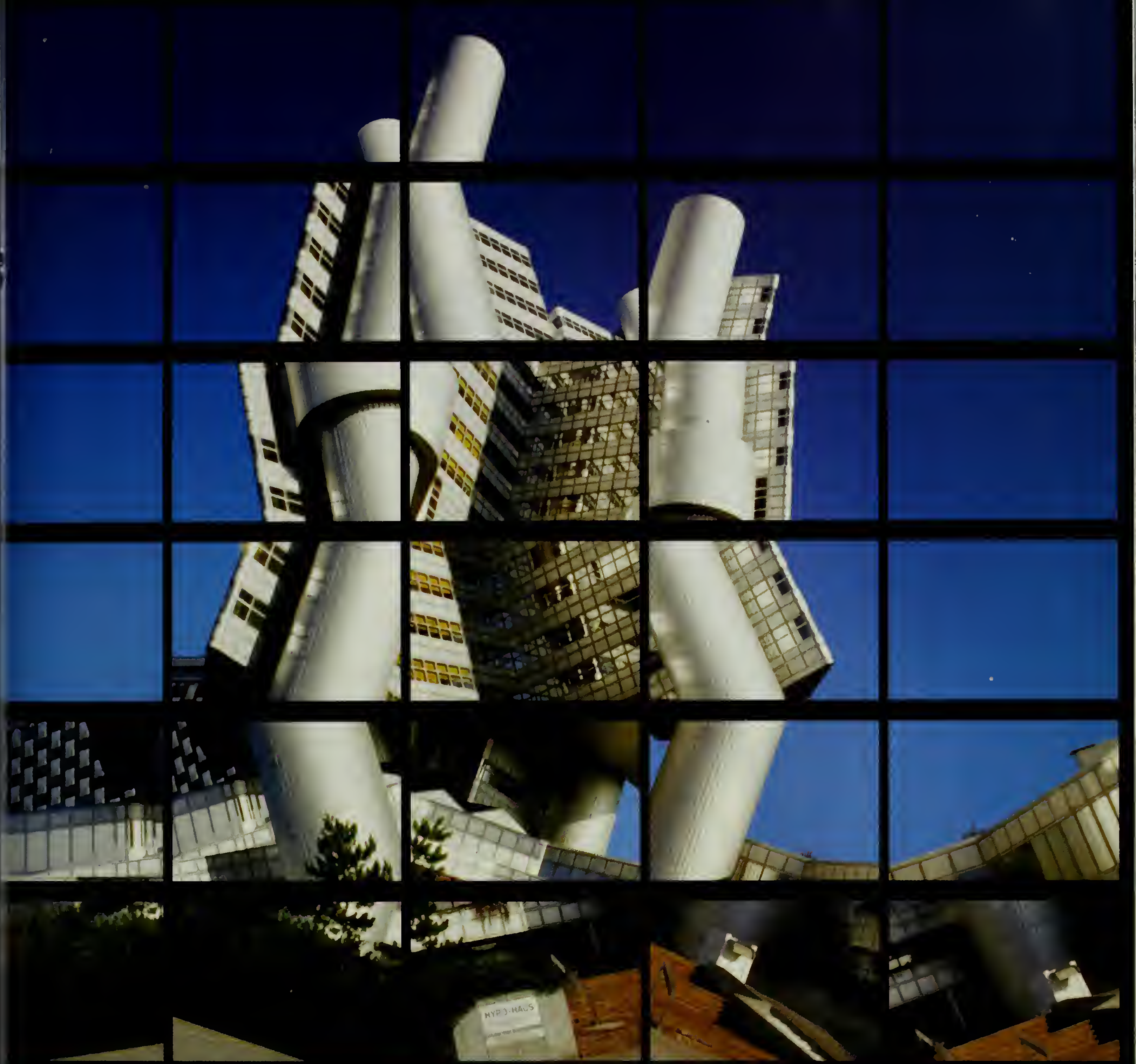

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Great Fortune

Editorial

By Robert Ivy, FAIA

Although architectural elements may constitute a language, strictly speaking, buildings cannot speak. That's why they make such poor characters for any movie or book—just standing there dumbly, emotionally inert, and only occasionally swaying about in a stiff wind. Imagine, however, an architectural subject striking enough to engage an educated reader with a gripping narrative, infinitely more compelling and commanding than, say, ***The Apprentice****. Livelier than a Ken Burns documentary. As real, and as grand, as life.*

It would take an epic. Fortunately, Daniel Okrent has ascended sky-high with his material, embracing the clutch of buildings forming Rockefeller Center as his protagonist, and weaving a tale as insistent as a Norse saga. If you read a single book about architecture during the coming months, or recommend a book for your banker or therapist, put away your Derrida this once and pick up ***Great Fortune: The Epic of Rockefeller Center****. Who said architecture had to hurt?*

Throughout its pages, the author conjures the soul of New York City. We all know the mise-en-scène, from the radiance of Radio City Music Hall to the heady, musical swank of the Rainbow Room, the articulated elegant cascade of the Channel Gardens to the Prometheus fountain. But how did such a coherent wonderment—limestone-sheathed, sculpturally insistent, tactile—come to be? Only in New York, says Okrent.

From the perspective of the architect-reader, the author tells a fully shaded tale. In a way that more ascetic architectural history cannot, Okrent casts a narrative thread for New York's and America's greatest urban ensemble that begins in fact, waffles through ironic twists, and builds in sonorous chords toward wholeness. Nary a pedantic whiff drags the edifice down. Instead, the author inserts a playbill filled with characters, coloring each scene with the moneyed and talented and peculiar folk who oversaw its birth: great designers like Raymond Hood, who forged the classic American Radiator Building (1924) and the turquoise McGraw-Hill Building (1931), and Wallace Harrison, who later planned the United Nations and Lincoln Center; Harvey Wiley Corbett, who wrote for this magazine; and characters like S.L. Rothafel, aka "Roxy," the eponymous movie-palace czar; as well as great artists, including Diego Rivera and Georgia O'Keeffe. Along the ride, we encounter Depression-era architects—shoulder to shoulder in Manhattan's Graybar Building, churning out details—such as Edward D. Stone, who worked on Radio City but was fired on Christmas Eve for moonlighting while on the Rockefeller payroll. Who still connects Stone's name with Rockefeller Center?

Closest to a singular hero must be the client. The author offers an intimate a portrait of a shy John D. Rockefeller, Jr., thrust into a public role of gargantuan scope with structures that would eventually bear his family's name, and growing in calm assurance through the process. By contrast, his son Nelson emerges power-wired, it seems, and ready to charge.

Okrent washes this burgeoning mural with minute facts. Details both mammoth (556,000 cubic yards of Manhattan schist were removed before construction began) and granular (the actual bronzy color for the interiors of one building were derived from an ashtray handmade by an executive's daughter) complete the canvas.

The recorded tale has meaning from a contemporary perspective. Today, we confront a scenario in Lower Manhattan, where the scope of work on the former World Trade Center site suggests analogies, but no single family, institution, or personality holds sway. Without a didactic word, the Rock Center story portrays the intersection of human design and planning with fate, reiterating throughout the strength of willpower. Yet when the architectural stakes in the drama reach such heights, the author suggests, the protagonist overshadows and outlives the dramatis personae. Builders exit. Buildings remain.

Robert Ivy

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Letters

Welcome look at China

The March 2004 RECORD was one of the best issues ever. Coverage of the developing design and construction market in China was outstanding in every respect. A plus for me was your article about Brad Perkins and his current marketing efforts in China. When I first met and worked with Brad some 30 years ago, he was already showing great marketing promise. He obviously has improved and matured with the passage of time. Thanks for bringing me up to date on an old friend and marketing colleague.

—Gerre Jones, Hon. AIA
Via e-mail

Welcoming change in China

For a native of Shanghai, China, it's really special for me to see all the changes that are happening in my hometown. As you said, "The international revolution has already taken place." Being the financial center of China, Shanghai has been through a lot of revolutionary transformation "affecting the country's social, political, cultural, and economic spheres."

I'm really glad that McGraw-Hill has not only seen that, but also stepped into the leading role of becoming a bridge between China and the rest of the world. I worked as an international HR consultant for the second-largest Chinese consulting firm for four years before I left for the U.S. I've helped many companies to understand Chinese history and culture so they could enter into the local market. China has opened her door to welcome friends all over the world and will pay back their hard work with fruitful outcome.

—Rosy J. Zhang
Via e-mail

Leave China for the Chinese

Here's a novel thought: Leave China alone. Please. Leave China alone.

They were building places of great human scale, context, and beauty before the U.S. was discovered. They sure don't need us.

Chasing the work? Give me a break. I hope they chase all the blobs, twisted tubes, and glass boxes (and the architects who work 16-hour days to make even more money) back where they belong.

Did you really look at the "Projects Taking Shape" that you published? Based on your editorials, which I usually find enlightening, I am surprised.

Just because we can go into a country and rebuild it doesn't mean we should. Sound familiar?

—Ted Hoffman
Labelle, Florida

One for the rest of us

To defend RECORD's relentless overexposure of pop architects [Editorial, February, page 15] by stating that they "possess qualities we admire, including real talent, application of effort, organizational ability, savvy, media friendliness, and intellectual acumen," you are subjecting your readers to a ridiculous non sequitur. I thoroughly believe that there are scores of anonymous architects in this country and throughout the world who possess exactly those qualities you attribute to "our heroes," yet remain unheralded. RECORD is a fan-

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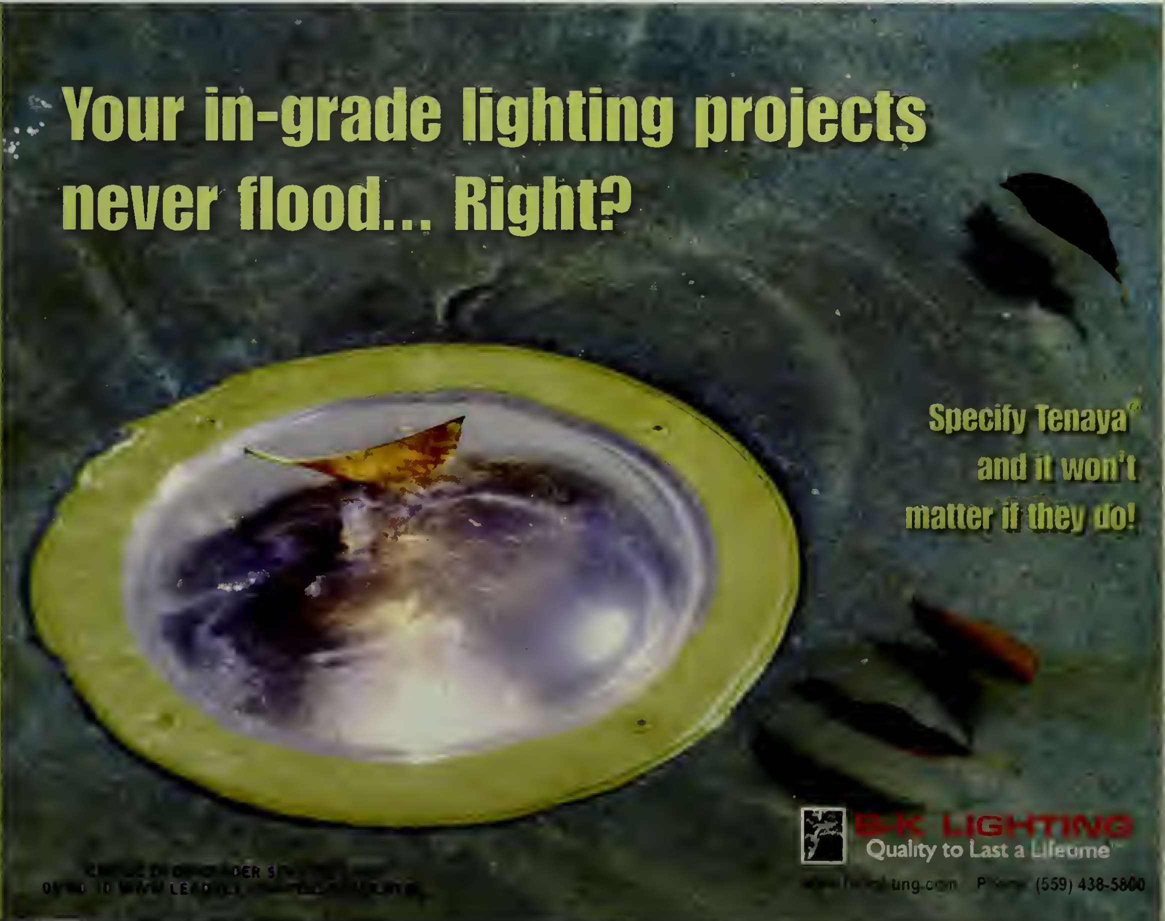
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tastic publication and is eminently capable of finding and illuminating the stunning work of architects such as Doug Garafolo or Krueck & Sexton. Yet work outside the elite bubble of famous names seldom graces your pages. Does possession of the above qualities lead to fame and a ubiquitous presence in your magazine or are there, perhaps, other factors at work? I'll admit, the work of our stars inspires me, and I buy RECORD to vicariously share their success. Yet I believe that the architectural community craves the work of good architects, not just famous architects. Going forward, I challenge you to take some risks. Do not eliminate, but rather tone down your coverage of the stars and increase your coverage of those architects who, while unknown, achieve greatness.

—Bryce Hanna
De Stefano and Partners
Chicago

Remembering our influences

Throughout my architectural education (I am graduating in May), the learning process of "see, absorb, forget, create" was never directly referred to. After reading Robert Campbell's February Critique [page 57], I can now see that architectural education perpetuates that.

Primarily, an instructor's suggestion of precedents in studio projects, beginning in the first year, is based on this concept. Many buildings are looked at, and some resonate more than others do with the student. These combine and eventually formulate the basis of a future designer's architectural voice. This is how architecture becomes ingrained in the individual and part of an identity.

However, I am disillusioned with the idea that an architect must forget his most important architectural influences to validate his own work. I believe that good architecture must be relevant to the current society. The most effective way to convince people of relevance is for the architecture to have a history.

Let the idea of a design stem from multiple established sources. Why are architects afraid of having a reference identified? It seems that if architects are proud of their work, they should be proud to identify their influences.

—Emily Stiene
Bristol, R.I.

Cut to the code

I would like to add my voice of full concurrence with Reginald Fuller [Letters, February, page 17] and Julius Pereira [Letters, March, page 19], who have spoken to the issue of safety in buildings and compliance with building codes.

I would like to see RECORD publish a full-scale article about architecture and codes; emphasis on and condoning of the AIA curriculum; and ongoing mini articles about the codes, their changes, and methods for compliance. Of course, I would also like to see you publish, as examples to the youngsters, only compliant projects.

—Ralph W. Liebing
Via e-mail

Corrections

In the March issue [News, page 26], the list of AIA Honor Award winners in the Architecture category left out Steelcase's office building in Grand Rapids, Michigan, by Thomas Phifer and Partners. In the March issue's product section [page 210], the caption for Walker Zanger's Antium collection of micromosaics ran with an incorrect photo. The correct photo is shown below.

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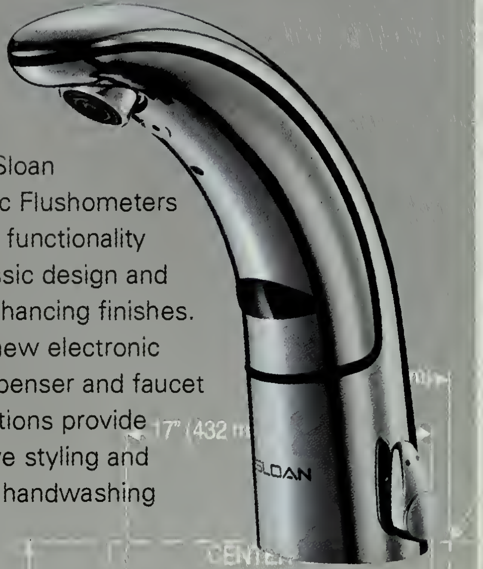

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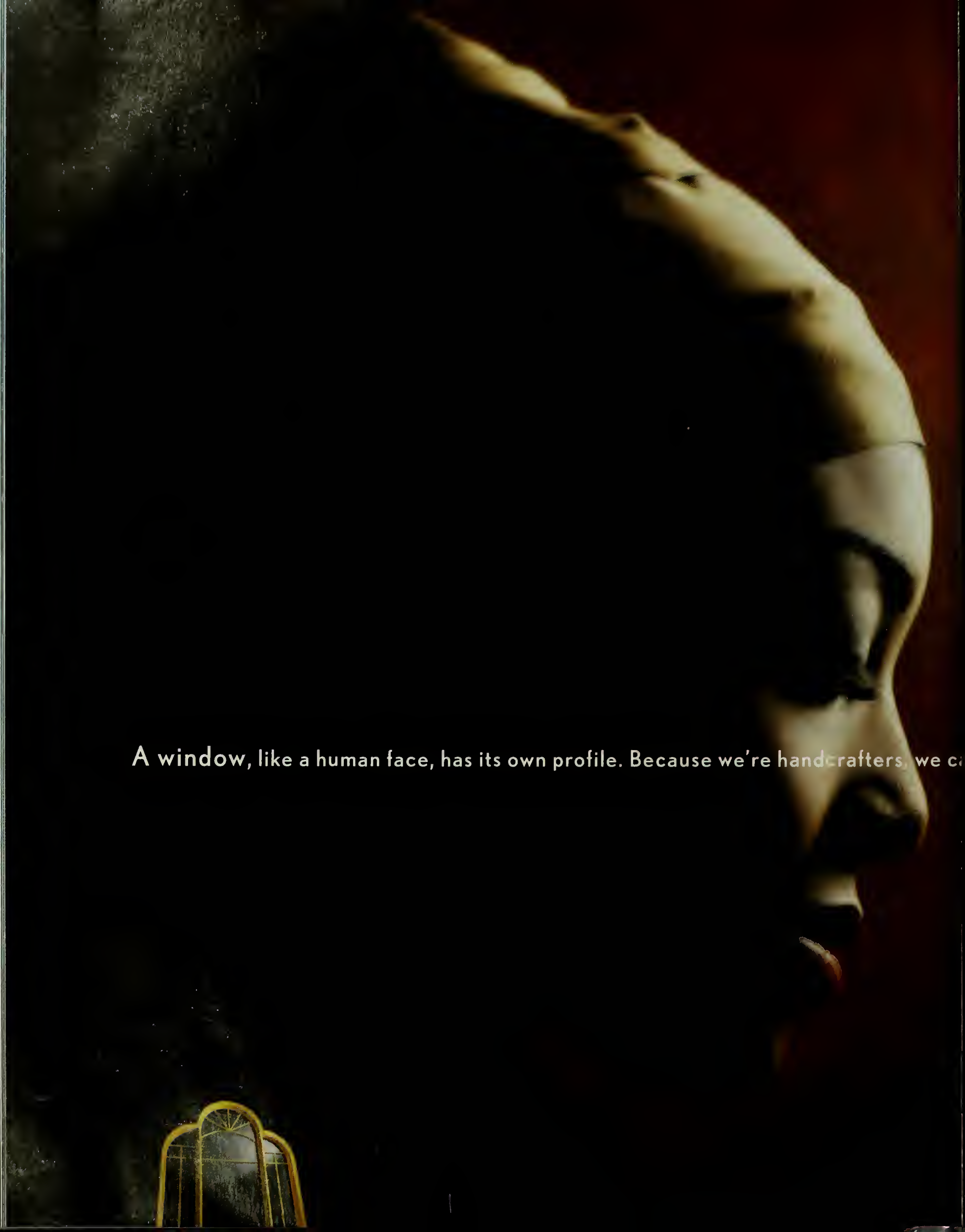

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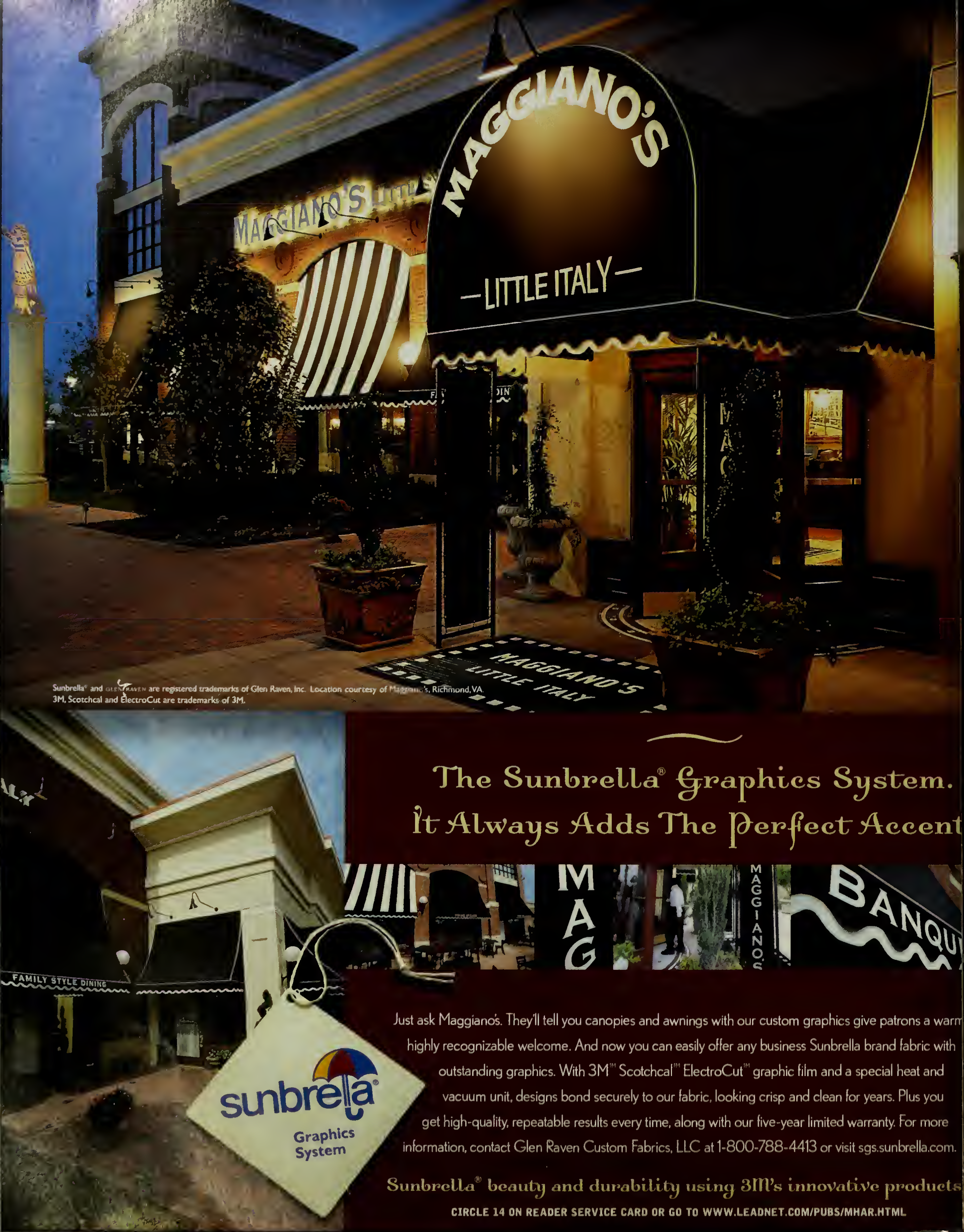

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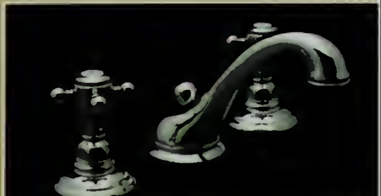
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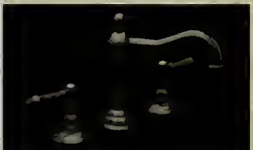
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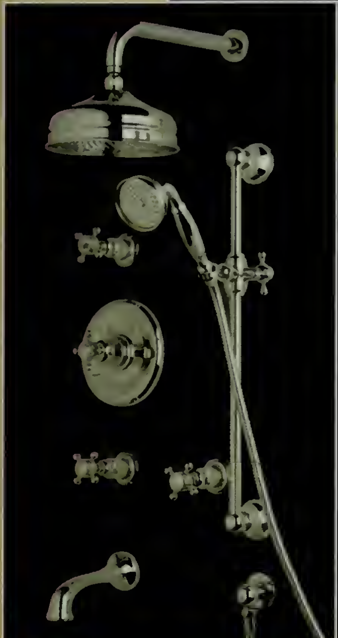
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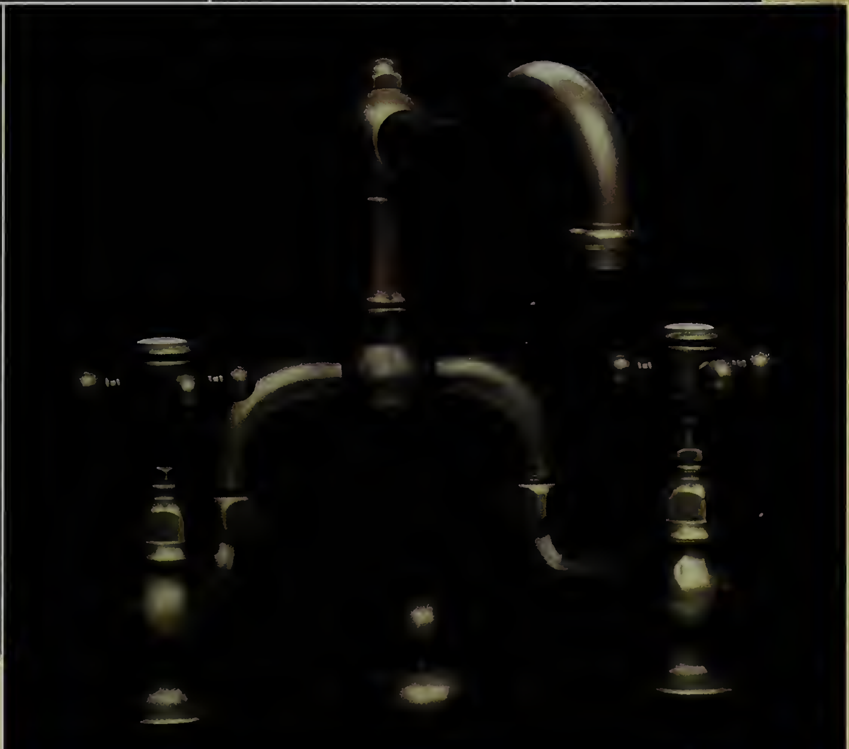
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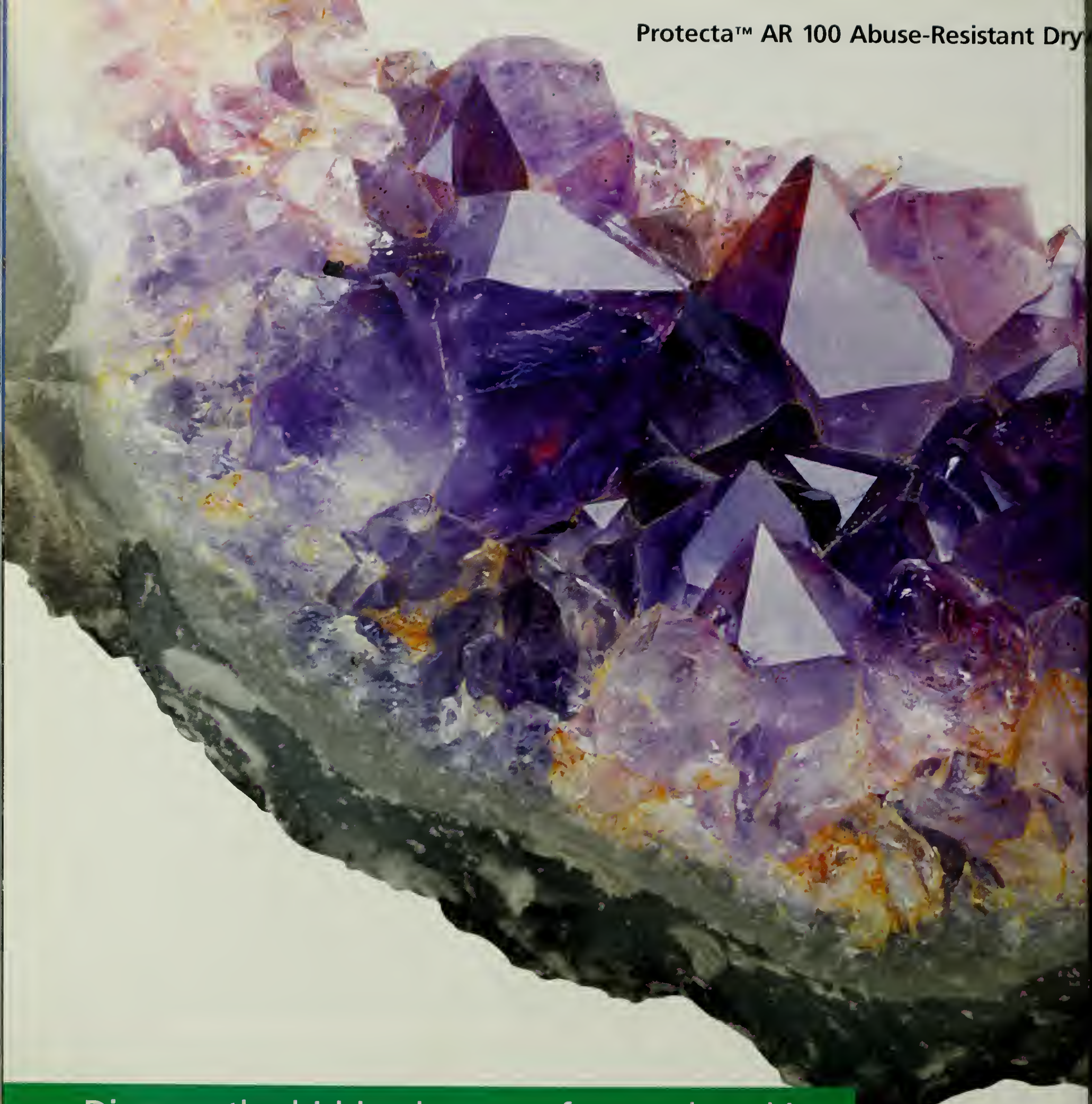

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Record News

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Maki to design new U.N. building p. 46

Zaha Hadid becomes first woman to win Pritzker architecture prize

Zaha Hadid burst through architecture's ultimate glass ceiling last month, becoming the first woman, the first Arab, and one of the youngest architects ever to win the Pritzker Prize, the profession's most prestigious award. The 53-year-old, London-based architect, born in Baghdad, will accept the prize from the Hyatt Foundation in late May at the State Hermitage Museum in St. Petersburg, Russia.

Hadid studied at the Architectural Association in London and was briefly a partner in Rem Koolhaas's Office of Municipal Architecture. She has taught at Harvard, Yale, and the University of Chicago, among others.

Twenty years ago, she became a cult figure when she won first prize at the Peak International Design Competition in Hong Kong for her visually antigravitational design for a sports club. Cantilevered over the heights of Hong Kong, the entry introduced visual physics into the field that took new eyes to see. The design quickly proved a foundation for architecture, a precedent for shifting Modernism's paradigm from simplicity to complexity. Architecture has been catching up with Hadid ever since, and the Pritzker is the latest acknowledgment that this radically original architect has moved in from the avant-garde margins to occupy a central position in the field.

Hadid (top) has designed projects like the Rosenthal Center for Contemporary Art (above left) and the Bergisel Ski Jump (above right), and sketched future works like the Price Tower Arts Center in Oklahoma (top right).

After a long gestation, she finally delivered her first major freestanding building, the Vitra Fire Station in Weil am Rhein, Germany, in 1993, and since then the commissions have accelerated, retiring the mistaken impression that her work was too difficult to build. The fluid contours of the Landesgarten Pavilion followed Vitra in the same city in 1999, and then the torquing Bergisel Ski Jump in Innsbruck, and recently, the triumphant Center for Contemporary Art in Cincinnati, whose unexpected geometries turned urbanity on its head. Projects now under construction include a huge BMW plant in Leipzig; the Price Tower Arts Center in Bartlesville, Oklahoma; a science Center in Wolfsburg, Germany; the National Center of Contemporary Art in Rome; plus master plans for Singapore, Bilbao, and Beijing.

Each project has advanced what Hadid considers her ongoing architectural research, as she has explored issues like the multiple ground plane, sectional interconnectivity, occupied structure, and formal and spatial liquidity. Working with principal associate Patrick Schumacher, she has designed not blobs, but complex shapes integral and open to highly porous, layered interiors. Through all the projects, she remains an urbanist: The open geometries invite the city into her buildings in a reciprocal relationship. *Joseph Giovannini*

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1979	**Philip Johnson**	United States
1980	**Luis Barragán**	Mexico
1981	**James Stirling**	Great Britain
1982	**Kevin Roche**	United States
1983	**I.M. Pei**	United States
1984	**Richard Meier**	United States
1985	**Hans Hollein**	Austria
1986	**Gottfried Boehm**	Germany
1987	**Kenzo Tange**	Japan
1988	**Gordon Bunshaft**	United States
	Oscar Niemeyer	Brazil
1989	**Frank O. Gehry**	United States
1990	**Aldo Rossi**	Italy
1991	**Robert Venturi**	United States
1992	**Alvaro Siza**	Portugal
1993	**Fumihiko Maki**	Japan
1994	**Christian de Portzamparc**	France
1995	**Tadao Ando**	Japan
1996	**Rafael Moneo**	Spain
1997	**Sverre Fehn**	Norway
1998	**Renzo Piano**	Italy
1999	**Norman Foster**	Great Britain
2000	**Rem Koolhaas**	The Netherlands
2001	**Jacques Herzog and Pierre de Meuron**	Switzerland
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REBUILDING LOWER MANHATTAN

Families, community groups express concern at Ground Zero

Family and community groups involved in advocacy for the rebuilding of the World Trade Center site agree that the process is entering a new, more settled phase. For some this comes as a relief, but for others it's just the beginning of the battle.

Monica Iken, the founder and chairperson of September's Mission, an organization representing families of September 11 victims, feels comfortable with the current state of development. "Right now, I'm happy to be in this place, because it's been two years of nonstop fighting and proving to stakeholders that we can work together," Iken says. "I'm thankful now that I have the support of the governor and the LMDC, and I look forward to working with them."

Other groups, however, are not so content. The Coalition of 9/11 Families, a large advocacy group comprised of 9/11 family organizations, has polled victims' families and other interested parties and has found that many are unhappy about a number of matters, such as Michael Arad's design for the memorial. A major issue is the planned random listing of names.

Box columns: historic artifacts?

"We can understand [Arad's] artistic motivation," says Anthony Gardner, a founding board member. "But we don't view this as a random attack; these people were killed as part of a calculated terrorist attack. For many people, my brother included, remains were never found, and the last thing we want to do is to come to the memorial and have to search for my brother's name on Tower Two, which would be inaccurate, since he was killed in Tower One."

Gardner also wants families to have access to 100 percent of both tower footprints at the bedrock level. His group is very concerned with the LMDC's handling of its section 106 proceedings, expected to conclude shortly, which examine federal construction projects that might damage historic properties. A finding of "no adverse effect" would essentially allow government agencies to proceed building on the twin towers' footprints unimpeded.

"Contrary to what the LMDC says, the outlines of the footprints are perfectly delineated on the site, an actual historic ruin," Gardner says. He also feels that the slurry wall that lines the west side of the site and the fragments of the structural box columns that remain on the site should be preserved.

Iken agrees that the names of victims should at least be listed in the correct tower's footprint, but she is less concerned than Gardner's group that families have access to the entire area of the twin towers' footprints. "Families understand that there is a PATH Station there," she says. She also differs on the proper use of historic artifacts above ground, such as the spherical Fritz Koenig sculpture that sat in the World Trade Center plaza or the remaining facades of the two towers. Gardner feels that those artifacts would help tell the story of what happened on that day, while Iken believes that the families should have the choice to not be confronted with those reminders. "I don't think the site should glorify the destruction, since it doesn't allow people to have a choice about what they see," Iken says.

Meanwhile, Beverly Willis, co-chairperson of Rebuild Downtown Our Town (R.Dot), a community advocacy organization, is concerned with the LMDC's General Environmental Impact Statement (GEIS), which she says does not give a full idea of the impact that construction will have on the area. According to Willis, noise and street closings will surpass what the GEIS predicts, since it limits its scope to the boundaries of the 16-acre site itself. Projects such as the construction of a bypass for West Street, a proposed bus terminal, and the recently confirmed demolition of the Deutsche Bank building to the south of the site are not considered part of the construction. She also believes that there is no reason to allow the building of the project's office towers to last 15 or 20 years. She estimates a construction time closer to five years for a market-driven approach. "The environmental-impact process is beginning to force community groups to become militant," Willis said. "Up to this point, the attempt has been to cooperate fully in every which way, but it does not appear that the governor and his team are even listening." According to Willis, R.Dot also continues to worry about the privatization of the street in front of 7 World Trade Center, the "bland" memorial, and the large amount of subterranean retail planned for the site. "The next few months are critical," Willis said, "since there's still time to make changes that can improve on the present decision-making substantially." *Kevin Lerner*

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REBUILDING LOWER MANHATTAN

Daniel Libeskind: Is his plan still around?

Daniel Libeskind is the World Trade Center master planner.

ARCHITECTURAL RECORD: *Do you think your master plan for the World Trade Center still exists?*

Daniel Libeskind: I think all of it is quite literally around. The Freedom Tower reaches to 1,776 feet. It has a garden. It is shaped to be part of an ascending spiral of skyscrapers. It fits into the master plan. The same is true for the memorial: The site goes 35 feet below street level; it has the slurry wall as an important design element; it has a waterfall and possesses space for cultural buildings.

Although it's not literally what was in my original images, it shows a robustness and a new kind of idea about a master plan. The master plan is not a bunch of lines on paper, it's about an idea. That's what has created the momentum and the consensus to let it be realized, rather than wind up in an archive. It's an evolution, not a compromise. It's the reverse of Potsdamer Platz in Berlin, which was just a bunch of architects following exactly what was on paper. This was a creative balance between the strength of ideas and a balance with individual pieces.

AR: *Did you ever expect your drawings of the World Trade Center to be realized?*

DL: Those were just the images, not the ideas. The superficial has changed, not the principles. There are some differences, but that's fine—that's the nature of the city. There were many opinions about it. I, in good conscience, thought I provided the maximum palate for the designers. You can say that's how a master plan becomes a reality. The boldness of it has to give way to all sorts of subtleties. This is the art of making a living master plan, rather than making an 18th-century plan that is obediently followed. We're living in a market economy. A plan that works is one that can unite all of those forces. A proscribed plan would have only been possible if I were hired as the sole architect. We're not living in Haussmann's Paris. We have a pluralist society.

AR: *Do you have a bad taste in your mouth about the collaboration with David Childs?*

DL: I'm not about to go into partnership with David Childs. But I did the best I could under the circumstances, which, given what happened, devolved to the point that I had to make sure that SOM would make a tower related to Ground Zero.

AR: *Is the Freedom Tower design as inspirational as you had hoped?*

DL: I'm not the architect. My role is very clear: To make sure the tower fits into the plan. I'm sorry the collaboration didn't go further than that. It wasn't a team working on all aspects. It was really tough going. It wasn't creativity at its highest level—it was about other things. At some point, I gave up the idea of the architecture of the tower. My role was instead to make sure that whatever was designed was responsible to the concept of spatial relations, the right relationship to the Statue of Liberty, to the street grid, the roofscape, and the concept of spiraling towers. It's not an ego statement or a developer's idea of a tower. It should stand as an emblem.

Daniel Libeskind in front of a model of the WTC Freedom Tower.

AR: *Did you expect so much struggle with your master plan?*

DL: I'm not naive. I didn't think this was going to be easy. Why should it be easy? It's a complex process with many pressures and tensions, and you have to be part of it. There's something exhilarating about democracy; it has to be enjoyed and respected. I'm truly inspired by how the process has taken shape over such a short time. To do something like this in the public limelight, yet move forward so efficiently, is a testament to America. *S.L.*

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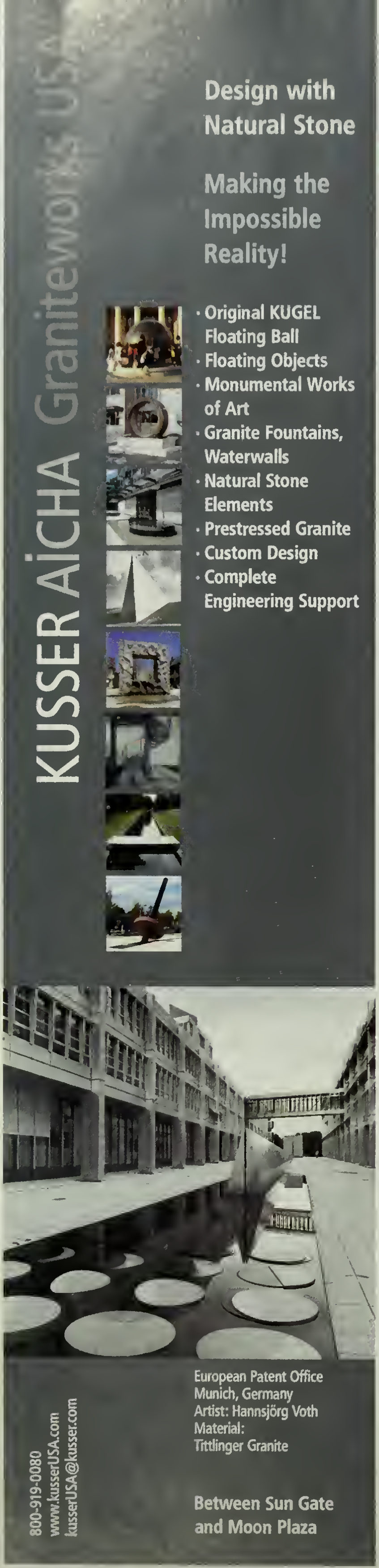

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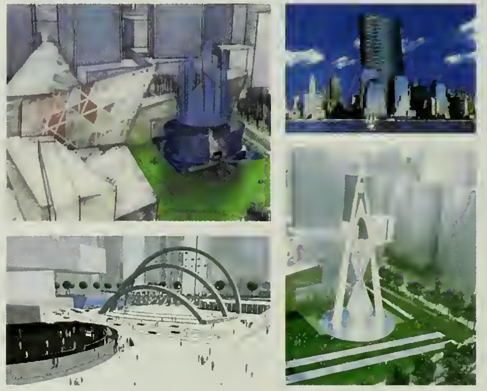
REBUILDING LOWER MANHATTAN

Virtual exhibition of all 5,201 WTC Memorial entries opens



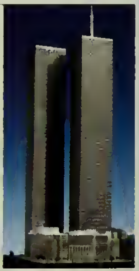
(Clockwise, from top left): Richard Chambers's monument and aquarium; Temur Tailuri's spiraling "vertical town"; Yu Chen's hourglass and digital fountain; Nicholas Bessemer's arches.

The Lower Manhattan Development Corporation has launched an online exhibition of all 5,201 submissions received for its World Trade Center Memorial competition. Located at www.wtcsitememorial.org, the virtual presentation allows visitors to search all entries by name, country, or entry number. Submissions include artists' written statements as well as plans, sections, models, and renderings.

Entries range from the simple, such as Alistair Abernathy's radial plan, to the fantastic, such as Yu Chen's massive hourglass with a digitally enhanced reflecting pool that evokes the image of the twin towers, and Richard Chambers's futurist glass monument that includes a memorial aquarium. New York State had 1,755 submissions, by far the most of any area. Entries came from 63 foreign countries.

"This is an amazing collection of heartfelt contributions," said LMDC chairman John C. Whitehead. "A viewer is struck by the overwhelming task the jury faced in selecting the final design among so many outstanding entries." *S.L.*

Team unveils design for WTC similar to original



A team of activists, architects, and engineers who call themselves "Team Twin Towers" recently unveiled a design (right) for the World Trade Center that is an almost exact replica of the original twin towers. The team, led by journalist Randi Warner, with a design by engineer Ken Gardner and architect Herbert Belton, is lobbying aggressively for its design, called the "Plan of the People."

The idea consists of two towers whose sleek, rectangular forms are purposeful reminders of the original towers. In fact, one of the designers, Belton, worked on the twin towers' original construction drawings for New York firm Emory Roth and Sons. The towers are designed to be two stories taller than the originals, and the planned north tower is topped by a 500-foot-high mast to make it the world's tallest.

While similar in form to the twin towers, the new design, the team says, is built to be much safer. It has a steel skin built in two layers—a tube within a tube—that has much heavier columns and greater structural support. The design also calls for larger windows, much improved fireproofing, and two twelve-story memorials made of the original steel skin (along with replications of it).

The team says the design is a much more effective symbol than anything in the works right now. "It stands for resolve, it stands for strength, it stands for renewal," says Gardner. "To see the towers return would have an inspirational impact on the population. It's a living memorial, and I think it's more powerful than pretending 9/11 never happened."

But will it get built? "I think there's a pretty good chance," says Gardner. "We believe, based on polls, that the majority of people favor this." Gardner thinks WTC developer Larry Silverstein's plans won't go forward if he loses his upcoming insurance payment case. The team is now shopping its plan to corporations for possible funding. For more information, visit www.teamtwintowers.org. *S.L.*

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Met and Uffizi undergoing major renovations and expansions

The Met's planned sculpture court (above). The Uffizi's "First Corridor" (left).

Two of the world's premiere cultural institutions—New York's Metropolitan Museum of Art and Florence, Italy's Uffizi Gallery—are expanding their gallery spaces to display art now left in storage.

The Metropolitan is undergoing a $155 million renovation to the southeast end of its building. Designed by Kevin Roche, John Dinkeloo and Associates of Hamden, Connecticut, the project will create a new double-height, 46,000-square-foot Roman sculpture court with skylights and limestone columns where a restaurant once stood. First-floor and mezzanine-level offices and restrooms will become Etruscan, Hellenistic, and southern Italian art galleries. The 30-year-old Islamic galleries are also undergoing renovations, and a new, 9,000-square-foot gallery for 19th-century art is being added above the Oceanic galleries. Finally, the museum's education center will now have a new, 300-seat theater and more classrooms.

Scheduled for a late 2007 completion, the renovations, which will take place entirely within the museum's footprints, enable the museum to display 7,500 works, up from 2,500, says Harold Holzer, vice president of communications.

Meanwhile, the Uffizi Gallery is executing a $75 million rehabilitation project that will allow it to display 800 additional works. This marks the first major renewal of Giorgio Vasari's 16th-century, U-shaped palace in decades. Planned for a 2006 completion, some of the gallery's first-floor rooms opened in March. The project more than doubles the Uffizi's existing exhibition space, from 64,800 square feet to 140,400 square feet.

The expanded gallery surpasses "even the Louvre," says Giuliano Urbani, Italy's culture minister. Other upgrades include new staircases at the eastern and western gallery wings, plus more space between the artworks, improved lighting, and enhanced security systems.

However, a controversial new 78-foot-tall steel canopy exit by Japanese architect Arata Isozaki remains on hold after a public outcry over its design. The Postmodernist loggia scheme won an international design competition in 2001, beating submissions from Mario Botta, Norman Foster, and Vittorio Gregotti, among others. *Tony Illia*

Austin's dreams of new art museum building dashed

Design for the Austin museum.

Despite generous contributions from donors, plans for a new, $43 million Austin Museum of Art building, designed by Gluckman Mayner Architects, have been abandoned.

While the museum, whose current building opened in 1995, has received more than $14 million in donations, most of the money has been spent acquiring land and preparing construction documents, museum officials say. Ultimately, fund-raising for the project proved too difficult in the present economy, while the new building's annual maintenance expenses would have been three times more costly than the museum's current budget.

The proposed three-story, 141,000-square-foot building called for a design scheme of horizontal bands, running from north to south, with 25,000 square feet of galleries, a film theater, an education complex, and an outdoor sculpture garden. The concrete structure would have consisted of fluted precast panels, terrazzo floors, a limestone interior, and polycarbonate/glass glazing. Museum officials say they are now exploring other options. *T.I.*

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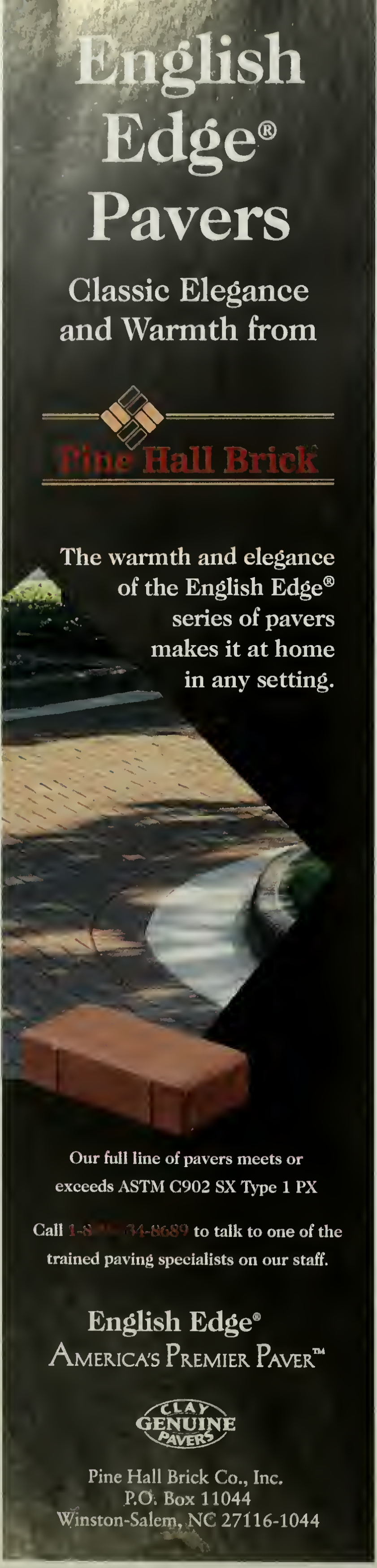
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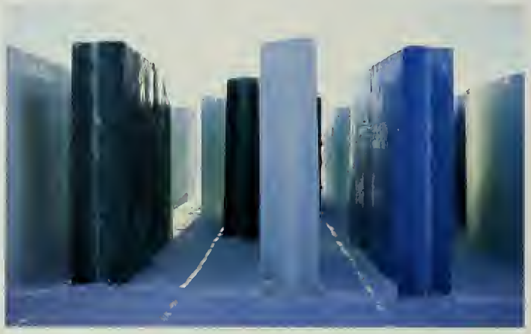
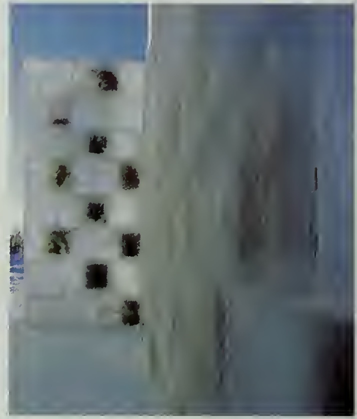
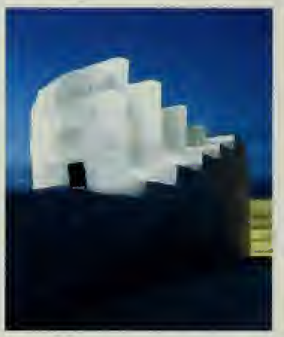
The Snow Show: architects (and artists) build with ice







(Clockwise, from top left): Enrique Norten and Lawrence Weiner; Morphosis and Do-Ho Sun; Anamorphosis and Eva Rothchild.

The Snow Show (www.thesnowshow.net) was conceived four years ago by New York art curator Lance Fung, who wondered if architects and artists would collaborate in a novel medium at a remote location. The port city of Kemi and the provincial capital of Rovaniemi agreed to host and partially fund the event. Fifteen adventurous architects were paired with artists to create structures of ice and snow, which were exhibited in Finnish Lapland in February and March.

To test the feasibility of the project, two structures were commissioned in February 2003, one by Steven Holl and Jene Highstein, the other by Asymptote and Osmo Rauhala. Seductive images of these creations were flashed around the world, drawing positive responses. The Finnish government, corporations, the European Union, and UNESCO provided funds, but the $1 million budget, plus a lot of volunteer labor, was only sufficient to realize 17 of the 30 projects Fung had hoped to include. Moreover, the Future Systems/Anish Kapoor entry imploded on the eve of the opening, bringing the total to 16.

Inevitably, in such a blue-sky project, the quality of the entries was uneven, but all gained from the pristine landscapes and the crystalline beauty of ice. A few of the collaborations were seamless, each enhancing the other. Tadao Ando designed an elliptical tunnel of clear ice blocks 14 feet high—a triumph of construction—into which Tatsuo Miyajima embedded bands of digital LED numbers, which glowed though the ice like tiny points of fire. Athens-based Anamorphosis found common ground between native rock and alien snow, arranging curved bleachers and blocks with a cascade of ice shards to evoke the ancient theaters of Attica. Yoko Ono imagined a penal colony of ice, and Arata Isozaki realized the concept in a labyrinth of four concentric walls.

Often the architect—or, more rarely, the artist—upstaged a collaborator by creating a self-sufficient work. To dramatize the transformation of water as it freezes, Thom Mayne of Morphosis planned a simple enclosure of clear ice blocks in which "fossils" of red liquid were embedded. That left little scope for Seoul-based artist Do-Ho Suh, whose proposal for an ellipse of sunken floor lights was rejected as too costly four days before the deadline. By contrast, Juhani Pallassma deferred to Rachel Whiteread, inviting her to model a staircase of compressed snow and providing a self-effacing enclosure.

In other projects, Enrique Norten translated his love of glass into totems of colored ice, which shimmered in the low winter sun and glowed with quiet intensity by night. Zaha Hadid designed two identical stepped forms, one of snow, the other of ice, although both were damaged on opening night by an overdose of flaming vodka poured on them in the name of art by Cai Guo-Qiang and his helpers.

Given the challenge of building so many innovative designs in record time (a mild winter delayed the start), the first Snow Show must be accounted a success. However, Fung had a falling-out with the Finns and now plans to reprise the Snow Show in St. Moritz next February, and near Turin, Italy, during the Winter Olympics of 2006. *Michael Webb*

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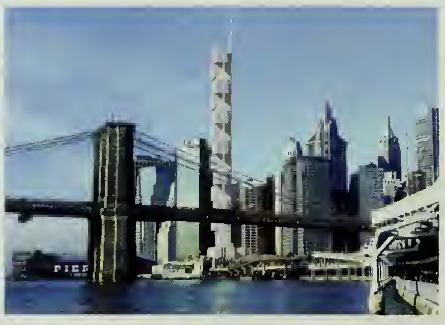
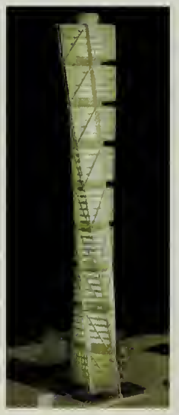
Ever busy, Calatrava designs skyscrapers based on sculpture



Calatrava's new skyscraper in Manhattan (above) will be similar to his work in Sweden (right).



Weeks after revealing his plans for the World Trade Center Transit Hub, Santiago Calatrava has unveiled a design for a skyscraper that will make another major mark on Lower Manhattan's skyline. His sculptural, 835-foot residential tower will be called Townhouses in the Sky, and will be at 80 South Street, along the East River in the South Street Seaport District.

Calatrava's first residential project in the U.S., the building will be made up of 12 glazed cubes, each 4 stories high, cantilevered in ladder-like steps up a slim vertical core. The highly unusual building recalls Calatrava's own works of sculpture, including one standing in the architect's town house that looks almost identical to Townhouses in the Sky.

"This tower represents an opportunity to live in a work of art," said John Evans, vice president of Sciame Construction Company, which will build it.

In addition to the twelve exclusive town houses, the high-rise, its builders say, is planned to house a major cultural institution. Completion is set for late 2006 or early 2007.

"I feel very fortunate to have been asked to design a tower for New York City, which is the home of the skyscraper," the architect says.

Calatrava is working on an equally sculptural skyscraper in Mâlmo, Sweden, called Turning Torso, based on one of his sculptures by the same name. The building will feature nine cubes set around a core of stairs and elevators to produce a spiral structure. It is set for completion by summer 2005. *S.L.*

Symposium showcases Japanese architecture

Several stellar Japanese architects recently converged on Manhattan for a symposium at the Japan Society called "Technology and Tradition in Contemporary Japanese Architecture," co-organized by ARCHITECTURAL RECORD. The conference was launched with a lecture by Fumihiko Maki, recently appointed architect for both a new United Nations building and a tower at Ground Zero. The focus then passed to younger compatriots, including Waro Kishi (houses inspired by L.A.'s Case Study program), Kengo Kuma (a famous glass pavilion "floating" on water), and the ebullient Jun Aoki (Louis Vuitton stores in Tokyo's ritziest shopping districts).

Aoki, Shigeru Ban (his work shown at left), and Kazuyo Sejima are rising stars of this generation. Each has built or is about to build in Manhattan: Aoki's work for Vuitton on Fifth Avenue, Ban's Paper Arch at the Museum of Modern Art in 2000, and Sejima's New Museum (with Ryue Nishizawa) envisaged for the Bowery. While Dana Buntrock, one of six moderators, emphasized the moderate means of many private Japanese clients, the most seductive projects presented by this trio are all museums: Aoki's in Aomori, Ban's for Metz in eastern France, Sejima's in Kanazawa Prefecture.

Meanwhile, engineer Masato Araya addressed the symposium's theme by describing his work both with Toyo Ito and in serene temple precincts—a characteristic duality of the hypermodern and the ancient. Projects by subsequent speakers Hitoshi Abe (at left in photo above) and Takaharu & Yui Tezuka address another important duality in the country: condensing formal gestures with a particular eye for nature. ***Raymund Ryan***

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San Francisco design community frets over new high-rises

The approval in January of two large condominium projects in the shadow of San Francisco's Bay Bridge, each designed by the San Francisco firm Heller-Manus Architects, will bring the city much-needed housing and density, elements long urged by the city's planning department. But some San Francisco architects and design experts argue that their uninspiring designs and skyline-blocking forms could negatively affect two newly developing neighborhoods, and even the willingness of the city as a whole to embrace dense residential development.

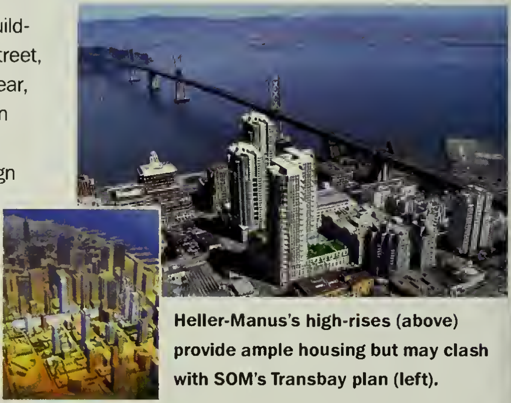
The 350- to 400-foot-high, 800-unit buildings at 201 Folsom Street and 300 Spear Street, which could break ground as early as next year, provide ample residential space and follow, in general terms, a so-called Vancouver–style combination of podia and towers. Such design is meant to ensure consistent and lively street fronts while creating density and maintaining light and views.

Jim Chappell, president of the San Francisco Planning and Urban Research Association, a prominent public policy think tank, supports the towers because of their utility. He explains: "San Francisco is 30,000 housing units short today, and for the past 20 years we've built an average of 1,000 units a year. These two projects alone provide a year and a half's supply and a huge shot in the arm that will get us a long way ahead of the game."

But critics insist that the buildings' bulk—85-foot-high podia, 115-foot-wide towers, and corner-to-corner separation of 82.5 feet—will both block sunlight in the area and blight skyline views of San Francisco, particularly from the Bay Bridge. John Parman, cochair of *Line*, the magazine of the AIA San Francisco, emphasizes that in this case, housing needs are trumping good design. "Because it's housing, they can building anything? You don't get urbanity by rolling over. You get urbanity by fighting for a decent building every time," he says.

The towers may affect two developing plans for adjacent areas: the San Francisco Planning Department's Rincon Hill Plan, and the Transbay Redevelopment Project Area Design for Development, completed by a consortium led by Skidmore, Owings and Merrill's (SOM) San Francisco office. Both plans, currently in draft form, stipulate high-density residential neighborhoods that achieve livability through sunlight, dynamic streets, and open space. The Transbay plan dictates building proportions different from the Folsom/Spear towers, to maximize sky exposure: podium heights closer to 40 feet, producing slender towers up to 550 feet tall and 150 feet apart. Ellen Lou, a planner at SOM, is careful not to criticize the towers outright, but she notes, "The pattern for these two projects is not a pattern that's sustainable for a much larger area."

Heller-Manus principal Clark Manus, FAIA, claims that his buildings are not bulky enough to block views (his firm, he says, has done extensive studies to ensure this), and that his plan meets or exceeds all of Transbay's requirements, save for building separation, which he considers an ill-planned requirement. "Any further separation would not permit people to see through the site, because it would force an awkward reconfiguration of the towers," he rebuts.



Heller-Manus's high-rises (above) provide ample housing but may clash with SOM's Transbay plan (left).

Meanwhile, the approval of the Folsom/Spear towers before the approval of the Transbay and Rincon Hill plans seems to some like the cart leading the horse in the area's planning. While the earliest construction of the Transbay plan is not expected until at least 2008, the towers will likely begin to define the shape of the neighborhood far sooner, threatening, some say, efforts to create a consistent downtown residential community. *San Francisco Chronicle* urban design writer John King argues, "It all goes back to the city telling potential buyers: Ignore the rules."

Manus says that his firm's designs far predate any neighborhood schemes, and claims that the situation has come about because of delays in the local bureaucracy. "This plan should have been completed a decade ago," he says.
Andrew Blum

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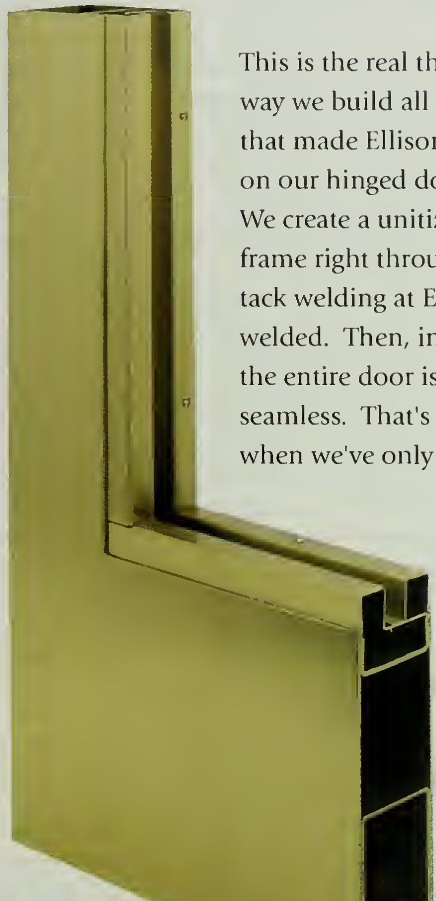

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The U.N. Building, seen here from the East River, will have company.

Maki to design new United Nations building

New York City officials have confirmed that the United Nations Development Corporation (UNDC), the nonprofit benefit corporation set up to provide the U.N. with space and facilities, is talking with Pritzker Prize–winning architect Fumihiko Maki about designing an additional building for the U.N. in New York.

The building, on First Avenue between 41st and 42nd Streets, will become the organization's temporary headquarters while the current building, to its north, is renovated and enlarged as part of the U.N.'s Capital Master Plan. Eventually, the new building will house U.N. employees who are now scattered throughout the city.

While no design has been unveiled, officials familiar with Maki's plan say the roughly 900,000-square-foot, 35-story gleaming new office tower, adjacent to the Secretariat, will rise without setbacks from a base of about 30,000 square feet. Its foundation will occupy part of what is now the Robert Moses Playground. According to one official, the building's geometry will be simple, though subtly varied, with a slight angling of the facade on the upper floors and a glass curtain wall with a light-colored frit. Maki, meanwhile, said he could not comment on the design until it is formally unveiled, which he said may happen later this month.

Construction of the new building is expected to begin sometime in late 2005 or 2006, wrapping up around 2008, while the U.N.'s subsequent renovation is tentatively set for 2012.

Not surprisingly, the expansion project will focus on secure design. While competition finalists Maki, Norman Foster, and Kevin Roche, FAIA, all heeded the project's security requirements, the U.N. will also work closely with city, state, and federal governments in examining further security measures, according to Toshiyuki Niwa, outgoing director of the Capital Master Plan.

Meanwhile, the prospect of losing the paved playing area of the 1.3-acre Robert Moses Playground has spurred neighborhood groups to demand equivalent open space. U.N. and city officials have proposed the construction of an esplanade along the East River in front of the U.N. complex. This would also help fill a gap in the public path snaking around Manhattan.

But it appears doubtful that the esplanade alone would satisfy residents.

"An esplanade is a walkway and bikeway; it's not a park," said Bruce Silberblatt, vice president of the neighborhood's Turtle Bay Association. "We do not want a shovel in the ground unless an equal park, in form and function, is in place." Community groups are eyeing a Con Ed parking lot nearby on First Avenue, urging the city to acquire it through eminent domain.

Money for the $320 to $350 million U.N. project is expected to come through bonds issued by the UNDC. The U.N. will rent the space in a lease-purchase agreement. Funds for the Capital Master Plan are expected to come in the form of a $1.2 billion loan from the U.S. government. *Ted Smalley Bowen and S.L.*

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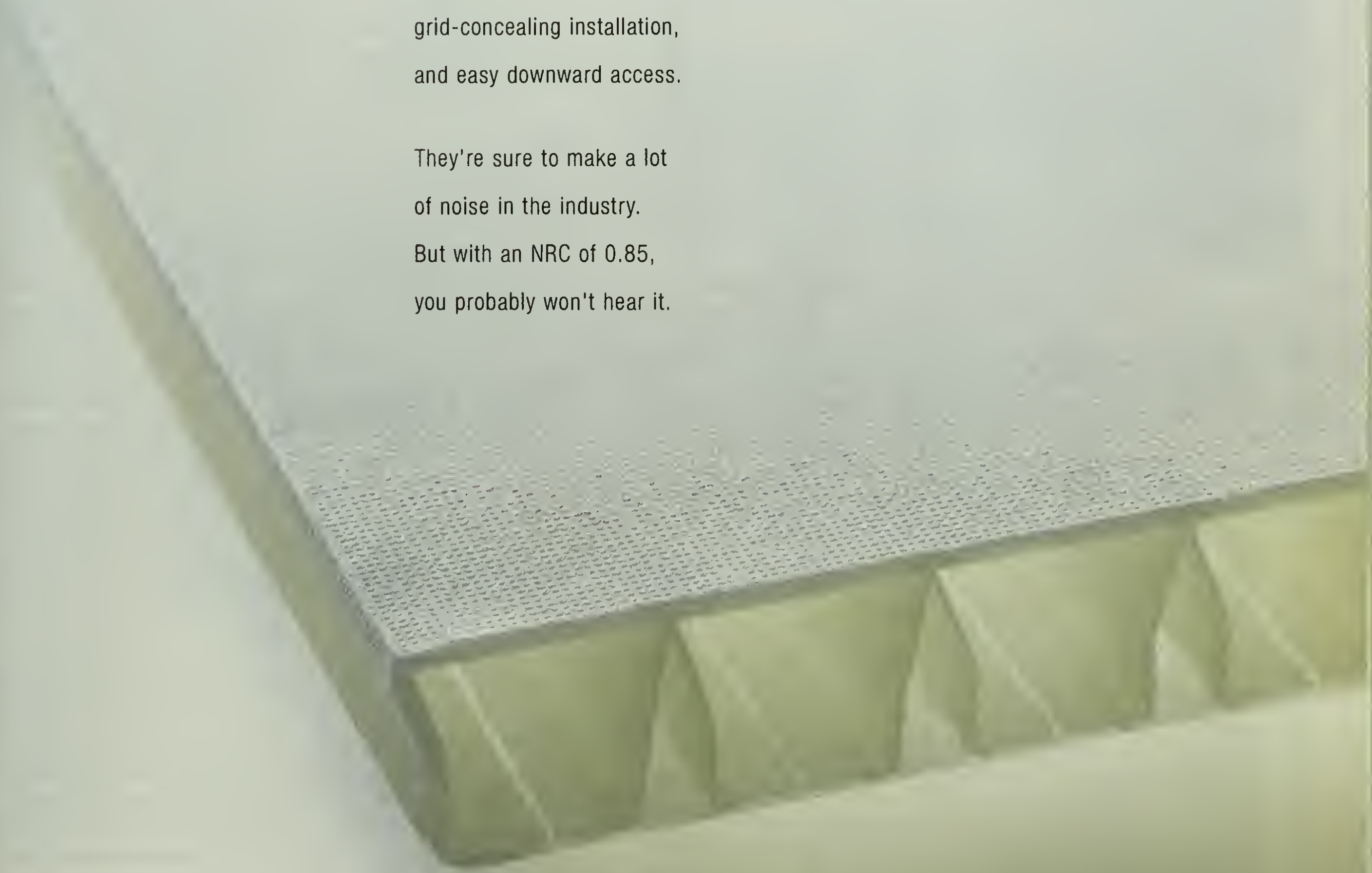

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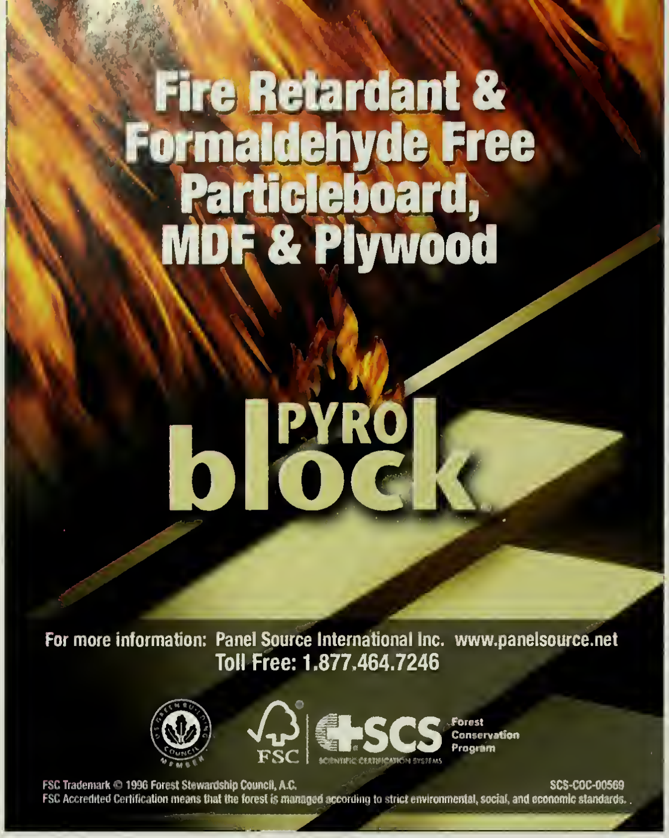
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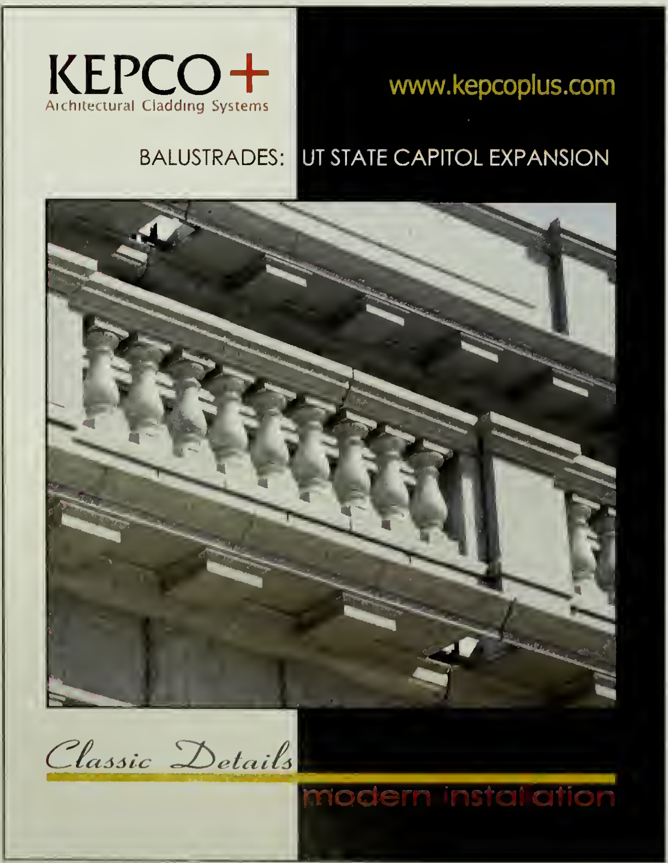
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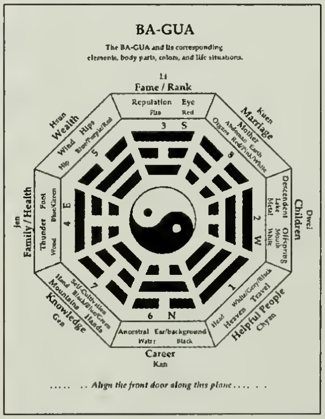
California assemblyman proposes resolution that promotes building with feng shui

California State Assemblyman Leland Y. Yee proposed a resolution on March 4 encouraging the state legislature to urge the state architect, local planning commissions, local design review boards, and other agencies responsible for design to consider feng shui—a Chinese practice in which a structure or site is chosen or configured so as to harmonize with the spiritual forces that inhabit it.

As Yee's spokesperson, Adam Keigwin, makes clear, the resolution (amended from a January 5 proposal) "is not a mandate," just a suggestion to make local municipalities more culturally sensitive about feng shui when deciding to accept or decline projects. "We're not experts in feng shui here," Keigwin reiterates. "We're focused on the design aspects [that are not] grounded in superstition, religion, or spirituality."



The Ba-Gua Octagon, used in feng shui to find preferred locations for certain functions in a home or office.

Keigwin hopes to foster design principles as simple as "openness, clean air, good lighting," and more general concepts such as feeling "comfortable rather than boxed-in" at work or at home. Keigwin gives an example of how feng shui placement is a matter of common sense: "When you're sitting at a desk in an office, you don't want to have your back to the door, you want to be facing it," he says. Feng shui also encourages the cultivation of oxygen-producing plants, and advocates keeping entryways clear of posts or other objects that obstruct the flow of movement.

According to the resolution, residential design enhanced by feng shui has already taken hold in California: "Developers and realtors have responded to the rise in Asian home ownership in various California communities by applying feng shui design principles to properties being built or sold to meet the demands of the consumer." As Keigwin notes, "It's what the market wants."

While many architects consult with environmental and disability-compliance experts when designing a project, this resolution encourages architects to collaborate with feng shui experts as well. Seann Xenja, a California-based feng shui consultant with a background as a contractor and a certified interior designer, applies feng shui to correct problematic spaces that, as he says, "shouldn't have left the drawing board" in the first place.

Yet for many, the line between where common design sense ends and feng shui begins is a fluid one. As Stan Nishimura, executive director of the California State Building Standards Commission, notes: "Feng shui is about how you design with the environment. Most architects practice it to some degree, but not the way it may have been developed in China." And still, as the spokesperson for another California assemblyman, Kevin McCarthy, suggests, there is a question of legislative priorities. "We should be working on things that Californians are demanding," he says.

Diana Lind

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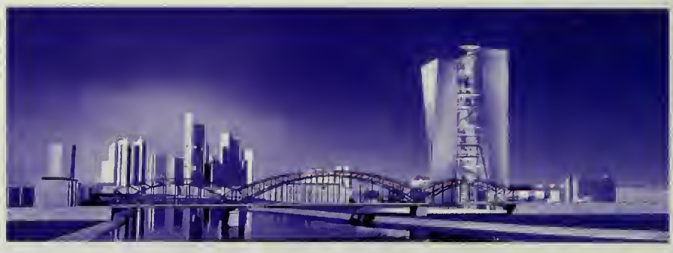


Coop Himmelb(l)au planning European Central Bank Headquarters

Coop Himmelb(l)au has won a competition to build the new European Central Bank Headquarters in Frankfurt, Germany. The firm beat out about 300 architects for the project, including Frank Gehry, FAIA, Thom Mayne, AIA, and Ken Yeang.

The 2.2 million-square-foot building, scheduled to begin construction in 2005, will take the form of a double-slab tower that twists and changes form as it rises, a shape that firm principal Wolf Prix says not only lends dynamism to the bank's image, but increases wind flow into the building. Inside, an atrium known as the "vertical city" is connected by large platforms and includes skylighted "hanging gardens," adding green to the interior.

The project will take shape on the river in the east part Frankfurt. It is expected to be completed by 2008, and will open in 2009. *S.L.*

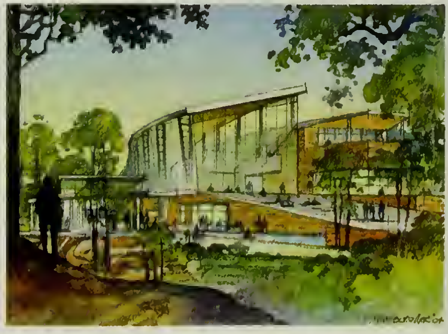
Stern designing American Revolution Center

Robert A.M. Stern's design for the $100 million, nearly 108,000-square-foot American Revolution Center in the Valley Forge National Historic Park in Pennsylvania will be the first museum to tell the full story of the American Revolution.

The museum will include the largest assemblage of documents and artifacts related to the Revolution, while its design—nestled into the landscape—incorporates the hilly topography of the site. "Landscape is an important part of our [nation's] experience as a political entity," Stern says.

About two thirds of the serpentine structure is underground, while a 3-story, glass-enclosed entry foyer provides dramatic vistas of the parade ground on which President Washington hardened his troops into an army during the harsh winter of 1777–78.

The design features an easy-to-navigate visitor circulation system and symbolically conveys continuity and permanence. The museum, designed over a six-month period—and Stern's, as well as the client's, favorite of the three concepts he developed for the site—is slated for a 2006 opening. *Joseph Dennis Kelly II*



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News Briefs

Pei (left) and Julius Mockbee (above), accept awards.

AAF hosts "Accent on Architecture" Awards

The American Architectural Foundation hosted its annual "Accent on Architecture" Gala on March 3 at the National Building Museum in Washington, D.C.

The black-tie event, with an audience approaching 1,000 (up from about 650 last year), included the presentation of the AIA Firm Award to Lake/Flato of San Antonio; the 25-year Award to I.M. Pei, FAIA, for his East Wing of the National Gallery of Art in Washington, D.C; and the AIA Gold Medal to the late Samuel Mockbee.

David Lake, FAIA, and Ted Flato, FAIA, gracefully shared the firm award with their coworkers, asking every firm member to stand, and bringing several associates to the stage. Later, a tearful Pei stunningly said he considered the 25-year Award for his revered East Wing more important than any other he had received. "I am lucky; 25 years is a long time," he commented. Moments later, Mockbee's widow, Jackie, spoke on behalf of her husband before the Gold Medal was handed to Mockbee's 16-year-old son, Julius.

The evening's events also included the presentation of the Keystone Award, which recognizes design leadership outside the design professions, to the General Services Administration for its highly successful Design Excellence program. Additionally, the American Architectural Foundation launched its "Great Schools by Design" initiative to encourage citizen involvement and cutting-edge design in creating new K-12 schools in the U.S. *S.L.*

The Sydney Opera House.

Sydney Opera House to get alterations

A new $6 million colonnade is being built on the western side of Jørn Utzon's Sydney Opera House. It marks the first exterior alteration since the building's opening in 1973. Designed by Utzon with his son, Jan, and Sydney architect Richard Johnson, the 148-foot-long, 16-foot-wide colonnade consists of nine large windows and doorways, connecting the western theater foyers. The addition will complete Utzon's original concept for the Opera House; the existing foyers were designed and built after he left the project in 1966. The new colonnade will be completed in July 2005. It is part of a $69 million Opera House improvement project now under way that includes, among other things, a refurbished reception hall. *T.I.*

Daniel Kiley dies

Landscape architect Daniel Urban Kiley, whose work ranged from the New York Botanical Gardens to the John F. Kennedy Library in Dorchester, Massachusetts, died on February 22. He was 91. Kiley worked with I.M. Pei, Louis Kahn, and Philip Johnson, among others. He helped shape the area around Independence Hall in Philadelphia, the Arch in St. Louis, Lincoln Center in New York City, and the Ford Foundation Building and National Gallery in Washington, D.C. He also helped sculpt landscapes at art centers in Detroit, Milwaukee, and Chicago. *T.I.*

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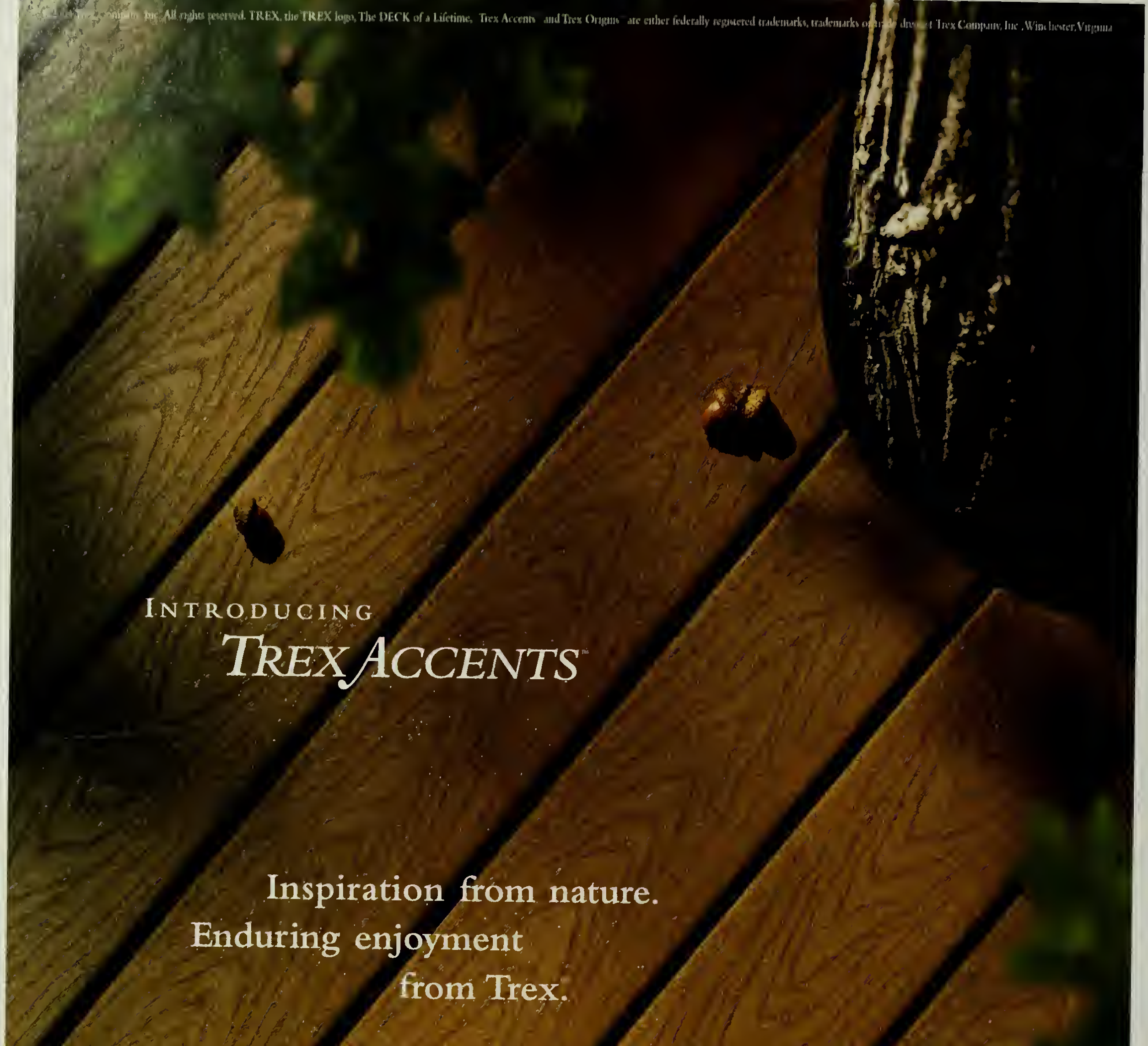

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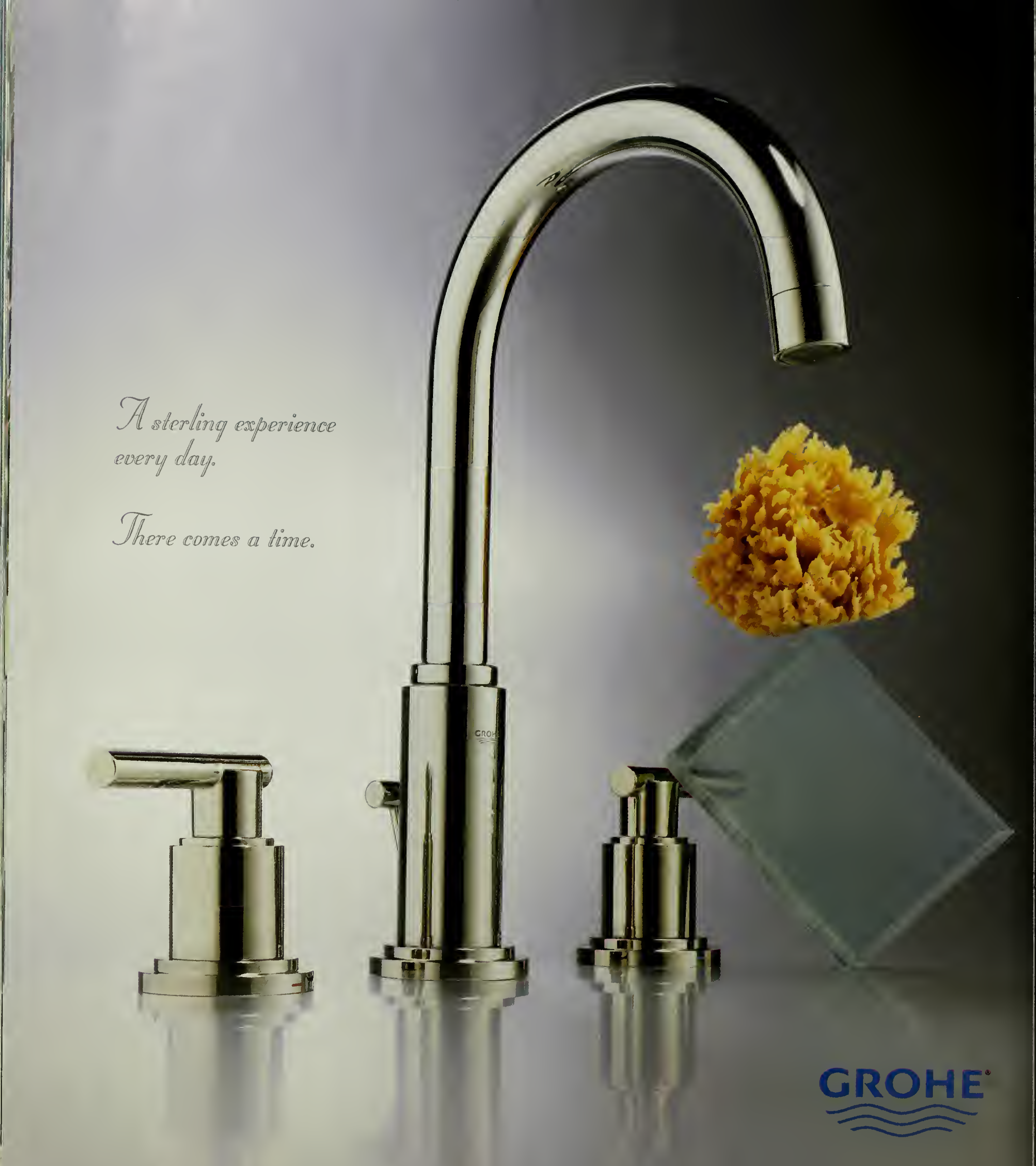

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Dates & Events

New & Upcoming Exhibitions

City Works
Los Angeles
April 15–July 1, 2004
An exhibition organized by Cityworks Los Angeles Communities Under Construction with participation by all L.A. design and architecture schools. At A+D Museum. Call 310/659-2445 or visit www.AplusD.org.

Yves Klein: Air Architecture
Los Angeles
May 12–August 29, 2004
This exhibition will feature drawings, texts, photography, sculpture, and film from the Yves Klein Archive. It was curated by architect François Perrin, who is also designing a site-specific installation for the Schindler House. At the MAK Center for Art and Architecture at the Schindler House. Call 323/651-1510 or visit www.MAKcenter.org.

Ronan and Erwan Bouroullec
Los Angeles
June 20–October 18, 2004
The first North American exhibition to focus on the work of French designers Ronan and Erwan Bouroullec. The brothers have burst upon the international design scene in the past few years with their futuristic furniture, products, and interior designs. At the Museum of Contemporary Art. For information, call 213/621-2766 or visit www.MOCA-LA.org.

Beyond the Box—The Architecture of William P. Bruder
Los Angeles
July 15–October 14, 2004
An exhibition of Will Bruder's work will be on view at A+D Museum. For more information, call 310/659-2445 or visit www.AplusD.org.

Ongoing Exhibitions

D.C Builds: The Anacostia Waterfront
Washington, D.C.
Through May 23, 2004
This exhibition examines the great potential of the Anacostia waterfront to become a valued civic amenity. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Cecil Balmond
Bordeaux, France
Through May 25, 2004
This show celebrates Balmond's inspiring solutions, which fuse architecture and engineering. Visitors can view the engineering of contemporary buildings designed by revered Modern architects—Koolhaas, Ito, Libeskind and Siza—with whom Balmond has collaborated. At arc en rêve centre d'architecture. For information, visit www.arcenreve.com.

Italian Mosaic Design
Brooklyn, N.Y.
Through May 31, 2004
The history, innovation, and contemporary uses of glass mosaics will be the subject of this exhibition at UrbanGlass. The show focuses primarily on Italian mosaic design, in particular the creations of Vicenza-based Bisazza Mosaico, considered to be the world's leading producer. At the Robert Lehman Gallery. Call 718/625-3685 or visit www.urbanglass.org.

Envisioning Architecture: Drawings from the Museum of Modern Art, New York
Washington, D.C.
Through June 20, 2004
The broad spectrum of 20th-century architecture and the depth of its artistic expression are revealed in this selection of works from MoMA's extraordinary collection of architectural drawings. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Affordable Housing: Designing an American Asset
Washington, D.C.
Through August 8, 2004
This exhibition demonstrates that low-cost housing need not be of low quality and explores the potentially far-reaching benefits of good design for residents and their broader communities. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Symphony in Steel: Ironworkers and the Walt Disney Concert Hall
Washington, D.C.
Through August 22, 2004
This exhibition presents more than 100 compelling photographs by Gil Garcetti, including

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spectacular images of the completed building. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Jorn Utzon: The Architect's Universe
Humlebaek, Denmark
Through August 29, 2004
This is a show illustrating Utzon's working method—his process—focusing both on the work and its sources of inspiration. At Louisiana. Call 45/4919-0719 or visit www.louisiana.dk for more information.

a_show: Austrian Architecture in the 20th and 21st Centuries
Vienna
Through 2005
Due to the expansive nature of its contents, *a_show* is subdivided into three sections and presented in three stages. It provides a ramble through historic and contemporary Austrian architecture and explores the most essential factors in establishing a cultural identity. At Architekturzentrum Wien. Call 431/522-3115 or visit www.azw.at.

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Lectures, Conferences, Symposia

National Landscape Architecture Month: Design for Active Living
Washington, D.C.
April 2004
The American Society of Landscape Architects (ASLA) has declared April 2004 as National Landscape Architecture Month. The theme highlights ways community design affects residents' daily activities and overall health. Call 202/898-2444 or visit www.asla.org.

Green Building Technologies
Pomona, Calif.
April 6–8, 2004
A conference sponsored by the Association for Efficient Environmental Energy Systems. For information, call 530/750-0135 or visit www.aeees.org.

Richard Haag
Washington, D.C.
April 12, 2004
The designs of landscape architect Richard Haag have focused on the redemption and reuse of forgotten landscapes. Recipient of the 2003 ASLA Medal, the Seattle-based designer will discuss his career. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Frank Lloyd Wright's Auldbrass
Washington, D.C.
April 13, 2004
Among his 1,000 buildings, Frank Lloyd Wright designed one southern plantation, Auldbrass, located in Yemassee, South Carolina. David De Long, professor of architecture at the University of Pennsylvania, will discuss how Wright reconfigured an entire building type, seeking to revitalize a lost lifestyle. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Resonating Frequencies: Dialogues on Architecture and Music
New York City
April 14 and 21, 2004
The Irwin S. Chanin School of Architecture of the Cooper Union presents "Dialogues on Architecture and Music," curated by Christopher Janney. The program will feature Laurie Anderson and Martha Schwartz on April 14, and MOBY and Bernard Tschumi on April 21. At the Great Hall at the Cooper Union. Call 843/902-0526 or visit www.thekitchen.org.

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April 15, 2004

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Dates & Events

The Society for Marketing Professional Services is holding a symposium, "Clients Talk Back About Construction Companies and Their Image," at The General Society of Mechanics and Tradesmen. Call 212/921-0061 or visit www.smpsny.org.

The Philadelphia Furniture and Furnishings Show
Philadelphia
April 16–18, 2004
This show offers the finest in handmade objects for the home and office, presenting a gathering of the work of decorative artists from all over the world. Call 215/440-0718 or visit www.pffshow.com.

The 48th Annual CSI Show & Convention
Chicago
April 21–23, 2004
The Construction Specifications Institute is holding its annual show and convention, which will include the debut of two special sections of the exhibition hall: the New Product Showcase and the Product Demonstration Area. Visit www.thecsishow.com.

EnvironDesign8
Minneapolis
April 21–23, 2004
A conference sponsored by *Interiors & Sources* magazine. For information, call 561/627-3393 or visit www.environdesign.com.

The Farnsworth House: Preserving an Icon
Washington, D.C.
April 26, 2004
The recent acquisition by the National Trust for Historic Preservation (NTHP) of the Farnsworth House in Plano, Illinois, ensures a secure future for this Mies van der Rohe masterpiece. Richard Moe, NTHP president, and Mies's grandson, architect Dirk Lohan, FAIA, who restored the house in 1997, will discuss the significance of the house and its history. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Solar Century
Washington, D.C.
April 28, 2004
Glen Hamer, executive director of the Solar Energy Industries Association, will discuss the history of the solar-energy industry and its explosive growth, innovative residential and commercial projects, and the policies and practices that will make the sun one of the most important energy sources of the

21st century. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

The Daring Men Who Built the World's Greatest Skyline
Washington, D.C.
April 28, 2004
Author Jim Rasenberger will address the dramatic history of New York's ironworkers, who risked their lives to build the city's vaulting steel bridges and skyscrapers. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Building with Stone: Granite and Marble for Architectural Exteriors and Monuments
Cambridge, Mass.
May 8–9, 2004
This symposium will explore technical and practical issues involved in the use, performance, and care of granite and marble in buildings, monuments, outdoor sculpture, tombstones and grave markers, and similar structures. Lectures will focus on quarrying, selection, specifying, evaluating, fabrication, detailing, and repair and maintenance of stone. Call 617/623-2253.

The 30th Annual Wright Plus House Walk
Oak Park, Ill.
May 15, 2004
Featuring Frank Lloyd Wright's Harry S. Adams House, visitors will also have access to seven other private residences designed by Wright and renowned contemporaries, as well as three architecturally significant public structures: the Frank Lloyd Wright Home and Studio, Unity Temple, and the Frederick C. Robie House. Call 708/848-1976 or visit www.wrightplus.org.

The International Contemporary Furniture Fair (ICFF)
New York City
May 15–18, 2004
Raw: The Next Generation is an exhibition of emerging designers that will highlight many of the most promising talents to recently appear on the international design landscape. At the Jacob K. Javits Convention Center. Visit www.icff.com.

Great Chicago Places and Spaces
Chicago
May 21–23, 2004
The weekend celebrates Chicago's renowned buildings, structures, homes, parks, landscapes, neighborhoods, and hidden treasures with more than 160 free tours and programming geared to the city's architecture and design. Call 312/744-3315 or visit www.cityofchicago.org/specialevents.

The 16th Montreal International Interior Design Show
Montreal, Canada
May 27–29, 2004
This show (SIDIM) will bring together the whole Quebec interior design community, as well as architects, engineers, contractors, developers, buyers, retailers, business people, government representatives, and a contingent of upscale consumers. Visit www.sidim.com.

On Both Sides of the Wall
Berlin and Potsdam, Germany
May 27–29, 2004
The Berlin Wall is perceived around the world as an icon and metaphor of the cold war. This symposium aims at fostering a wider awareness of the diversity and significance of monuments of the cold war in countries that belonged to NATO and to the Warsaw Pact, as well as in neutral states. At Cecilienhof Palace, Potsdam. For information, visit www.tu-cottbus.de/coldwar/.

International Greening Rooftops for Sustainable Communities Conference, Awards, and Trade Show
Portland, Ore.
June 2–4, 2004
Experts in diverse fields from around the globe will network and share knowledge about the benefits of green roofs, new research findings, policy developments, and the latest in green-roof products and services. Topics covered in panel discussions will include LEED, plant performance, policy initiatives, smart growth, biodiversity and agriculture, storm-water issues, and design. At the Hilton Hotel. Call 416/686-5887 or visit www.greenroofs.ca/grhhc/conference.htm.

PCBC: The Premier Building Show
San Francisco
June 15–18, 2004
Named one of the 50 fastest-growing trade shows in North America, PCBC gives home builders the chance to learn the latest trends in single-family and multifamily construction and design. Attracting over 25,000 home builders, developers, architects, and other professionals, this trade show will be held at the Moscone Center. Visit www.pcbc.com.

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Competitions

International Ideas Competition 2004: Shrinking Cities—Reinventing the City Berlin

Deadline: April 15, 2004

The objective is to identify innovative approaches capable of qualifying the urban transformations associated with the phenomenon of shrinkage, and to develop new ideas about the city based on the specific qualities of shrinkage itself. Visit www.shrinkingcities.com.

ASLA 2004 Awards Call for Entries

Deadline for entry form: April 30, 2004
Submission deadline: May 14, 2004

The ASLA Awards program honors the best in landscape architecture from around the globe. Visit www.asla.org/awards/2004/brochure.htm for more information.

2004 Marketing Communications Awards Competition

Deadline: April 9, 2004

The Society for Marketing Professional Services (SMPS) is accepting entries for its MCA competition, which recognizes excellence in marketing communications by professional-services firms in the design and building industry. Visit www.smps.org/awards/mca.htm.

Norwalk Housing Design Competition Norwalk, Conn.

Deadline: August 13, 2004

In response to the need for below-market-rate housing in the city of Norwalk, the Housing Authority of Norwalk is sponsoring a housing design competition for exemplary site and unit plans for first-time home buyers, entry- and mid-level professionals, and fixed-income seniors. Call 203/857-0200 or visit www.swinter.com/NorwalkHousingDesignCompetition.html.

The New Home on the Range: A Housing Ideas Competition

Deadline April 23, 2004

A competition to challenge architects and students of architecture to design the 21st-century seminal house. For more information, visit www.aia.org.

E-mail events and competitions information to ingrid_whitehead@mcgraw-hill.com.

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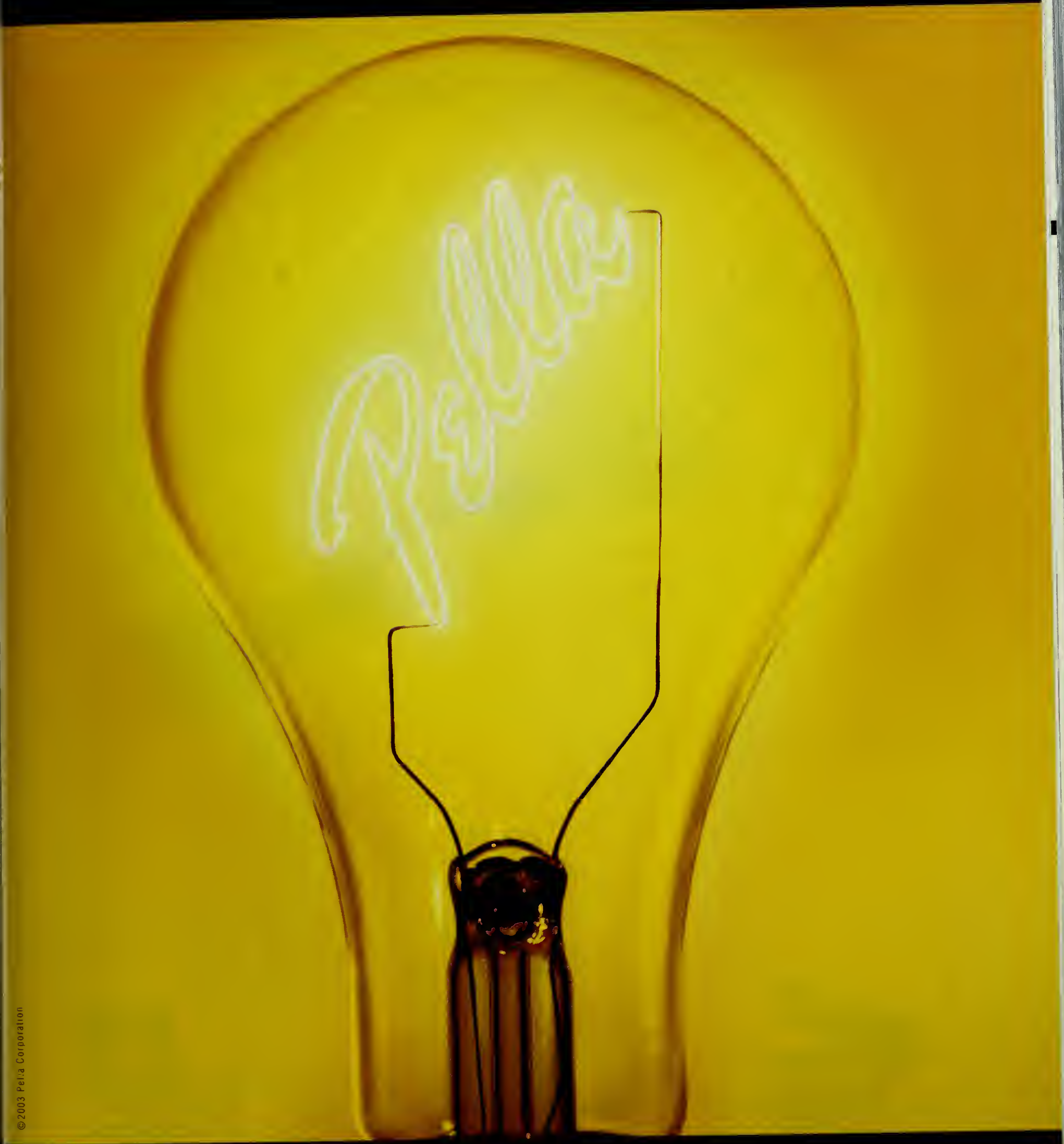

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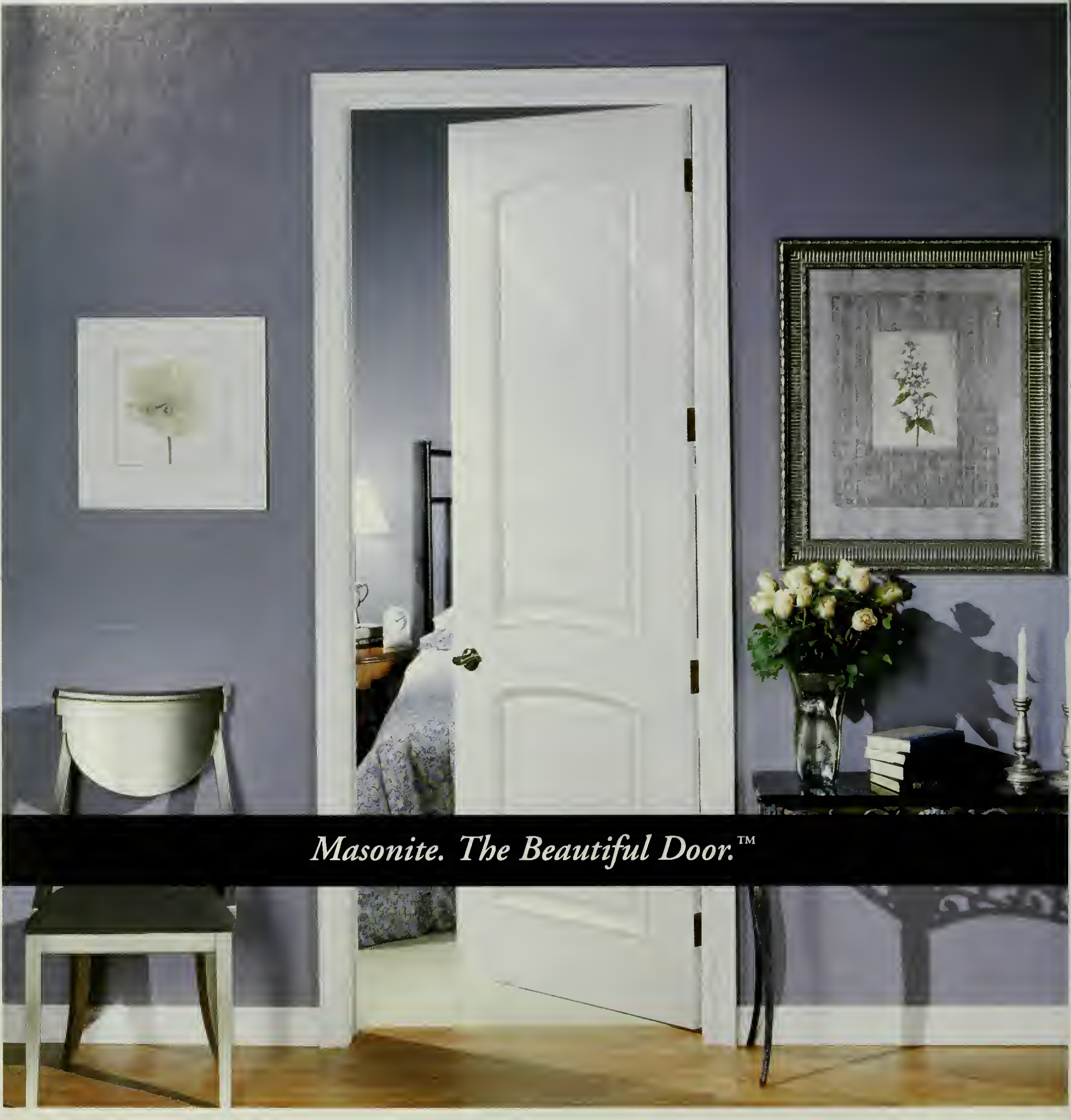

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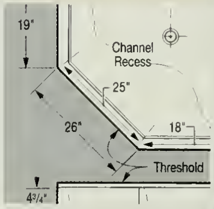

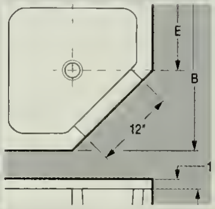

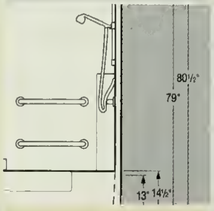

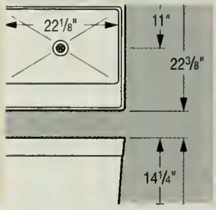

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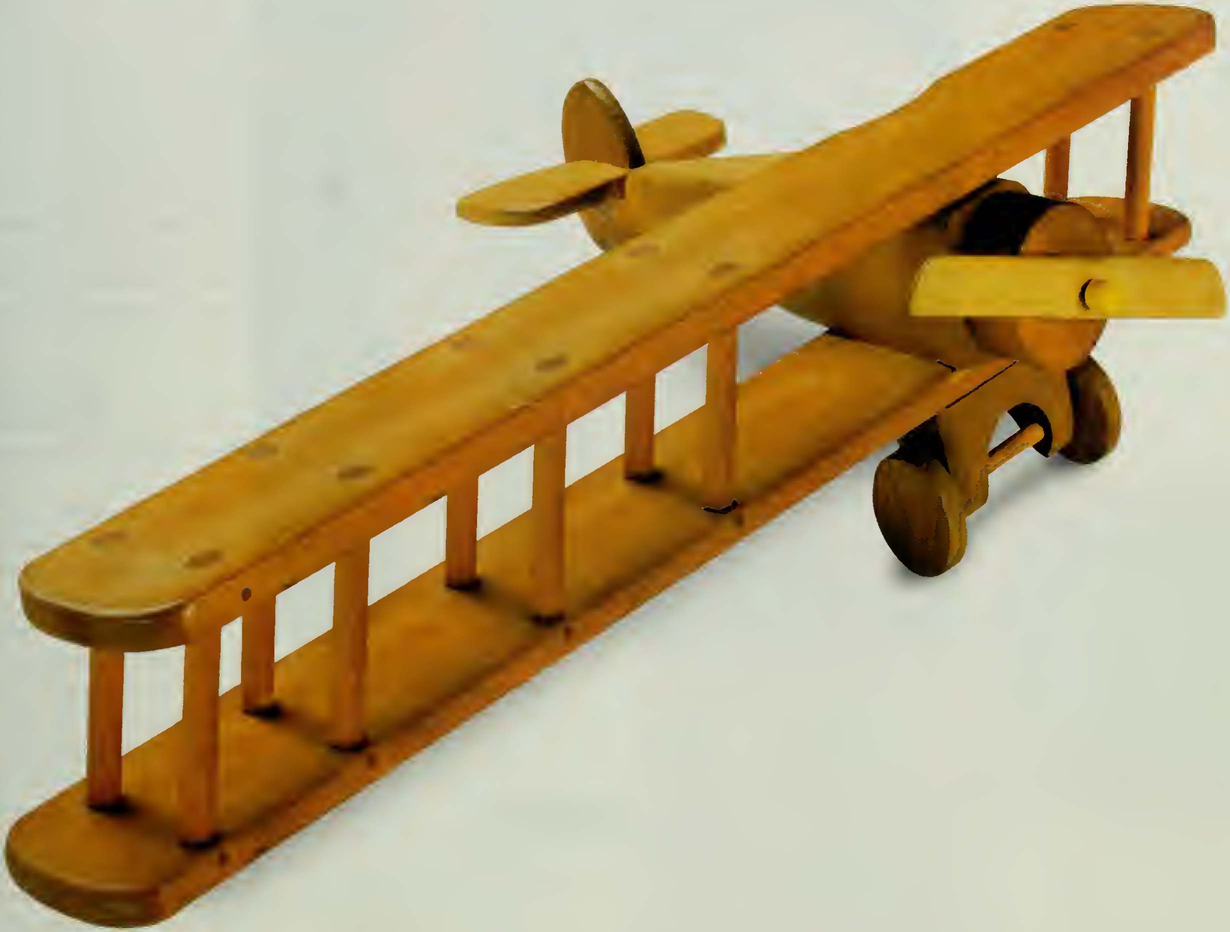

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For and about the new generation of architects

archrecord2

FOR THE EMERGING ARCHITECT

This month ar2 takes a look at two types of futuristic alternative housing. The projects are on opposite ends of the spectrum. In Design, architecture firm AllesWirdGut takes the concept of housing to a compact circular level, whereas in Work, architect Tobi Schneidler connects two houses set apart by long distances. Visit architecturalrecord.com/archrecord2 for a more in-depth and interactive look at these novel housing ideas.

DESIGN

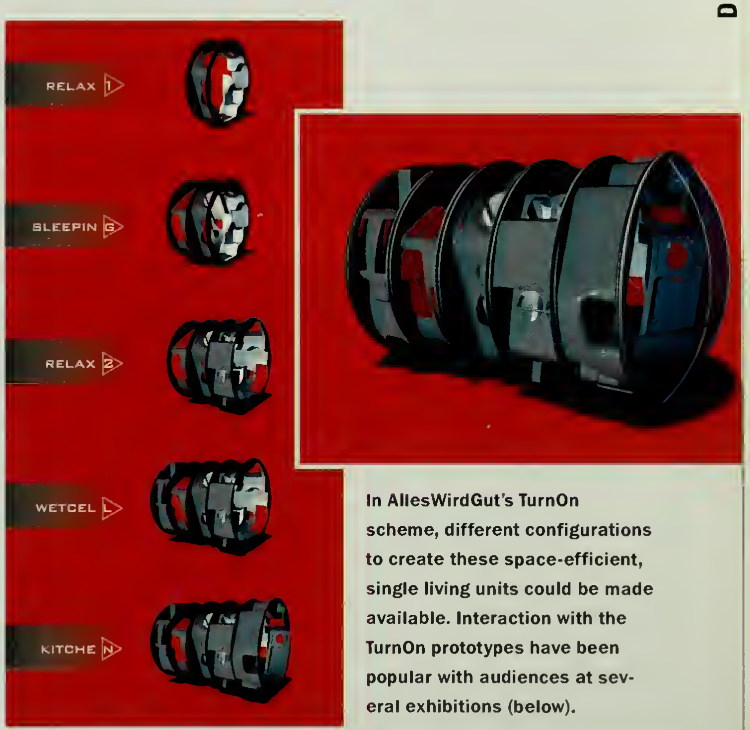
A house that rolls with the changes

Since 2001, the Austrian architecture and design firm AllesWirdGut ("everything will go well," in German) has sought to explore less conventional ideas of housing. Invited to participate in a young-designer's exhibition on living space in Vienna, the five-person firm began to rethink the idea of housing, ridding themselves of the typical blueprint of a ceiling, floor, and 4-walled structure. "We wanted something that was not only new but that would also be interactive and fun for the audience of the exhibition," explains architect Herwig Spiegl.

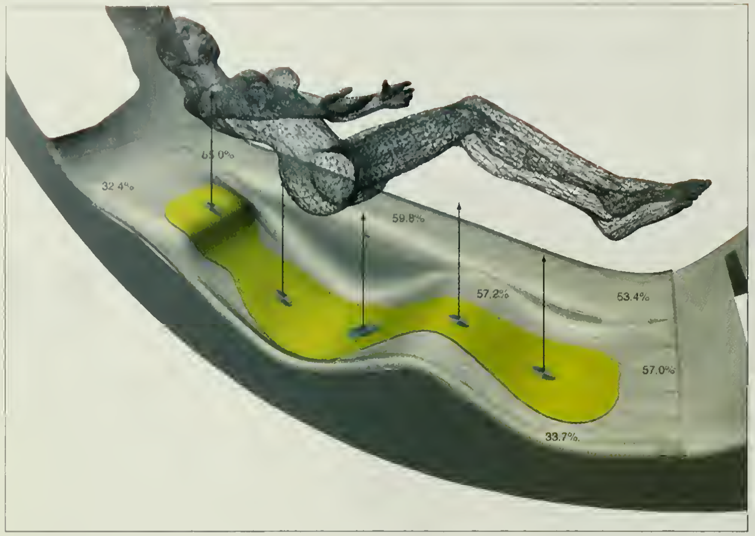
What AWG came up with was the housing concept called "TurnOn." It originated from scenes in the film *2001: A Space Odyssey* mixed with a desire to be as forward-thinking as the automotive industry. Spiegl states, "Carmakers join networks and share ideas, and because of that they have been able to make advances to create cars that at one time would be considered 'science-fiction' into a reality. But in the field of architecture, we rarely collaborate on new ideas and designs, and we are still using old ideas. We use the same parameters for housing that we did a thousand years ago—plane floors surrounded by edged corners." Straying from this configuration, AWG envisioned a more compact and more circular plan.

At first glance, TurnOn is reminiscent of a human-size hamster wheel. The arrangement would consist of several revolving modules linked together. Each module's interior would be outfitted for a specific room or function, such as a kitchen, bedroom, or exercise room. The wheel literally turns, and as the positioning of the module changes, so does its function. Spiegl explains, "For instance, while cooking, the couch becomes the ceiling, the dining table a wall." The Wet Cell, as AWG refers to it, is the module that would house the bathroom, including the toilet, shower, and bath. One would simply rotate the module to utilize one of the facilities.

The automotive industry's



In AllesWirdGut's TurnOn scheme, different configurations to create these space-efficient, single living units could be made available. Interaction with the TurnOn prototypes have been popular with audiences at several exhibitions (below).



As in car manufacturing, the TurnOn could be customized for the buyer. The topography could be manipulated to "support the relaxation of the body."

ability to prefabricate, mass-produce, and tailor its products for customers could be realized in the fabrication of TurnOn. "Just like customizing a car, the buyer could customize and accessorize to their own tastes and price range. Colors can be chosen, accessories such as flat-screen monitors could be added," says Spiegl, "and the modules could be arranged in infinite combinations."

AWG's idea has struck a chord in the architectural community and the general public. Since the first exhibition in Vienna, TurnOn has been featured in other showcases, including Archilab in Orleans, France, and the Vitra Design Museum in Berlin. Both home owners and club owners have made inquiries into having TurnOn installed as a functional, albeit irreverent, discussion piece. Spiegl is aware that TurnOn is a slightly far-fetched concept, but he stresses, "TurnOn is based on a very serious idea. Everyone talks about revolutionizing the way we live. There is definitely room to compromise between the housing being created now and what we propose." *Randi Greenberg*

Go to architecturalrecord.com/archrecord2 for more on AllesWirdGut's TurnOn, including more photos and interactive animations. Also find out how to submit your own projects.

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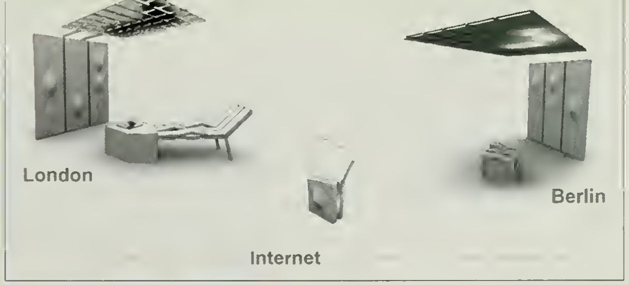
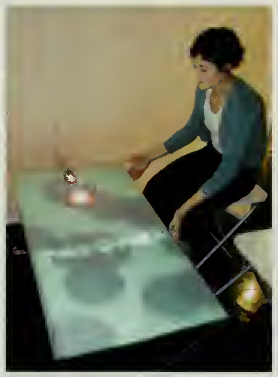
WORK

A tale of two-city living





In the RemoteHome, manipulation of items, like movement on the “lounge table” (left), creates music that can be heard through the “SoundShaft” (far left).

After graduating from the Architectural Association in London, German architect Tobi Schneidler found a new interest in digital media. While teaching courses in both England and Sweden, he began researching and directing projects at the Interactive Institute Smart Studio in Stockholm, where he honed an interest in interactive technologies. The architect's projects explore this interest at different scales, and it soon grew into the idea of interaction between two homes, dubbed the RemoteHome.

The RemoteHome is a communication system that connects homes in two different cities. Schneidler describes the project as “a home that stretches beyond borders and helps friends to stay in touch, literally, through tangible and sensual communication.” Discreet sensors are placed in objects around the house and transmit messages to users at the other end through the Internet. Schneidler explains, “These messages subsequently surface on the opposite end as tactile and visual cues on furniture and other physical surfaces.” For instance, “ambient scribbles” on an interactive light table will affect a wall of lights placed in the alternate apartment.

In 2000, apartment models were set up simultaneously at the Science Museum in London and at the Raumlabor in Berlin. At these exhibitions, distant audiences were able to interact with each other in real time. Schneidler says that audiences liked the idea of being connected and “appreciated that communication is built into the tactility of objects instead of through intrusive items such as video walls or cameras.”

In time, Schneidler expects that the residents of the RemoteHome will begin to recognize the nuances in the signals sent back and forth. “The artifacts respond to the way they are used,” he explains. “The devices react to a combination of different effects and are not simply an on/off transmission.” For instance, the force with which one resident sits on the couch in one apartment will be able to be felt and interpreted by a resident on the couch in the other apartment.

This year, Schneidler intends to take the showpieces from the exhibitions and implement them into the apartments he shares with friends in London and Stockholm. “Basically,” laughs Schneidler, “I will become my own guinea pig.” *R.G.*

For more on the RemoteHome, go to architecturalrecord.com/archrecord2

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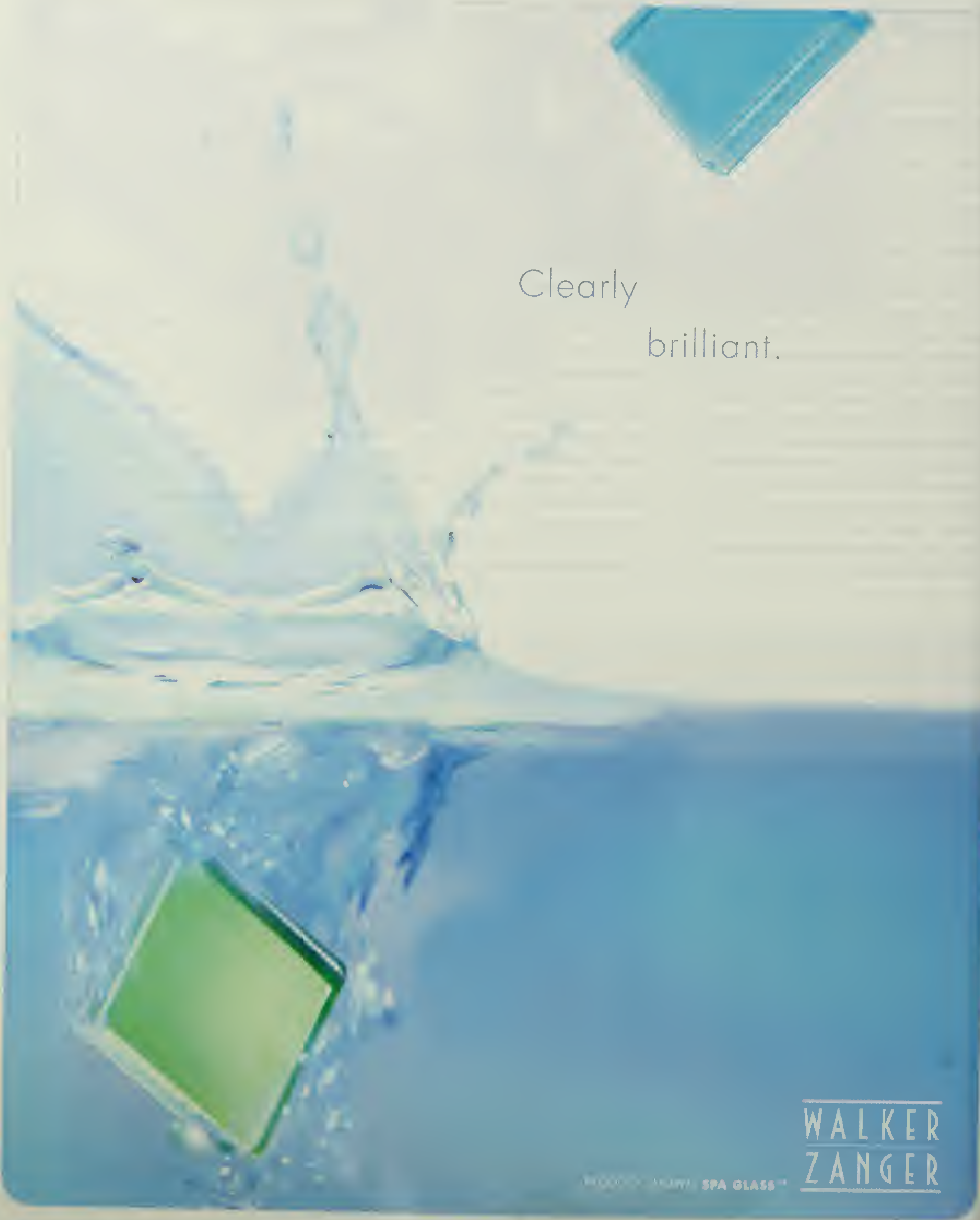

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Toronto's architecture has long been criticized for being solid but boring. Not anymore

Correspondent's File

By John E. Czarnecki, Assoc. AIA

Perhaps it's no coincidence that the master plan for the Daniel Libeskind–designed addition to the Royal Ontario Museum (ROM) in Toronto is being called Renaissance ROM. It is just one of many major architectural projects that are transforming Canada's largest city, long characterized by healthy neighborhoods but somewhat drab architecture, in a renaissance of intelligent, urbane, and unapologetically Modern buildings.

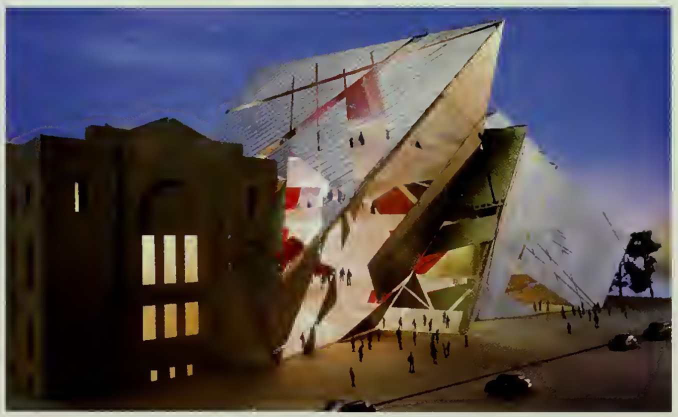
Decades after construction of the groundbreaking Skydome (1980s), CN Tower (1970s), and City Hall (1960s), Toronto's urban landscape has remained fairly stagnant, prompting critics to deride its clean but boring sterility. In January, arts writer Martin Knelman commented in the *Toronto Star*: "For decades, Toronto has taken a rap for settling for second-rate architecture. Toronto might be lively, comfortable, livable, and sophisticated. But you had to forgo the thrill of looking up and expecting to see one of the world's great skylines."

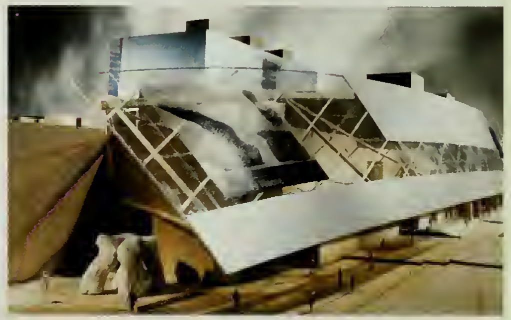
But increased private and public funding, a stable economy, and a newly restored appreciation for urban design have brought about significant cultural and university projects that not only enliven the city's design spirit but, taken together, would be the envy of any other North American city. Major buildings are either completed or under way by Libeskind, Frank Gehry, Will Alsop, Norman Foster, Behnisch Behnisch & Partner, and Montreal-based saucier + perrotte.

"In four to five years we'll look back and see a renaissance," says Larry Richards, dean of the Faculty of Architecture, Landscape, and Design at the University of Toronto. "The general consciousness of architecture and design has been raised. I would not have said this three or four years ago." In his January article, the *Star*'s Knelman also noted : "This city is in the midst of a cultural building boom, and that is something to celebrate."

Indeed, the announcement of such high-profile projects has garnered significant attention among Toronto's architects, press, and public, fostering an awareness of architecture that has enabled Toronto architects to have a more informed dialogue with clients. Whether people approve of the architecture or not, they are certainly taking notice, and most would no longer describe the city's design spirit as boring.

Meanwhile, a handful of Toronto firms, such as Diamond and Schmitt Architects, Teeple Architects, and architectsAlliance, are producing some of their best work. Diamond and Schmitt's Donald Schmitt says of the Toronto firms: "I think there's been an emergence of a Toronto school of architecture. It's not American; it's of this place, with projects that are grounded in urban form with intelligent use of detailing and materials."





Upcoming cultural projects set to enliven Toronto's architecture include Daniel Libeskind's Royal Ontario Museum addition (above), Frank Gehry's Art Gallery of Ontario project (right), and Diamond and Schmitt's Four Seasons Opera House (below).

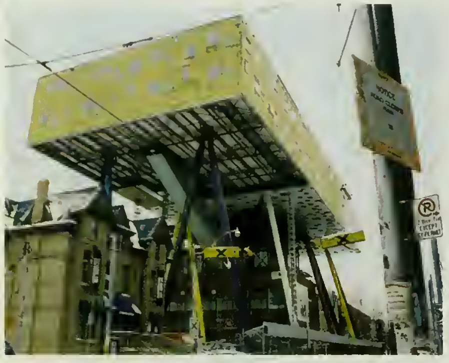
Support for cultural projects

Starting at the national level, Canada's new prime minister, Paul Martin, who was inaugurated in December 2003, has touted "a new deal for cities" and established an advisory committee to develop national strategies for urban issues. In Toronto, Mayor David Miller, also inaugurated in December, said in a mayoral debate: "Urban design matters; architectural excellence matters; public art matters." Meanwhile, in a powerful statement of commitment to urban improvement, author and urbanist Jane

John Czarnecki, an acquisitions editor for John Wiley & Sons, was formerly an associate editor at ARCHITECTURAL RECORD *and urban designer for Urban Strategies in Toronto.*

Jacobs has joined Miller's mayoral transition team, and architect Jack Diamond of Diamond and Schmitt was a Miller campaign cochair.

One government program already benefiting Toronto's infrastructure is Ontario's SuperBuild Growth fund, which has allocated $15 billion since 1999 for capital improvements and construction for colleges, universities, and cultural and civic projects.



Alsop's addition to the Ontario College of Art and Design.

One of the larger cultural beneficiaries of SuperBuild is the Art Gallery of Ontario (AGO), which, in one of the most publicized architectural events in Canadian history, unveiled its Gehry-designed expansion in late January [RECORD, News Briefs, March 2004, page 38]. Gehry, a Toronto native who moved to California in 1947, grew up a few blocks from the AGO. With construction to begin next year and finish in late 2007, this will be Gehry's first major project in Canada. The $146 million expansion is funded in part by $18 million from SuperBuild and $38 million from Canadian media magnate Kenneth Thomson. Gehry's design does not appear to have the sculptural exuberance of the Guggenheim in Bilbao or Disney Hall in Los Angeles (in part because the AGO project is a renovation and addition to an existing museum on a landlocked urban site), but its whimsical features clearly lend a great deal of excitement to the design community. Gehry includes a sculptural staircase that soars from the second floor, linking the AGO's Walker Court to a new center for contemporary art, as well as a promenade and new entrance under a curving 600-foot-long glass-and-titanium facade and a new four-story south wing adjacent to Grange Park. Significantly, the Gehry design calls for the disassembling of a major expansion designed in the 1980s and completed in 1993 by another former-Torontonian-turned-Californian, Barton Myers.

Further raising the level of Toronto's architectural fervor, and literally up in the air from the AGO, is perhaps the most controversial new structure in Toronto since the CN Tower: the $32 million Sharpe Center for Design addition to the Ontario College of Art and Design (OCAD) by British architect Will Alsop with Toronto firm Robbie Young + Wright Architects. In a daring move, Alsop, in his first North American commission, placed the majority of the new building on 85-foot-tall steel stilts high above the existing OCAD campus. Besides the stilts, the only connections between the two-story, 52,000-square-foot rectangle, dubbed the "flying rectangle," and the existing buildings, are an elevator/stairwell shaft and an emergency stairwell. The building is due for completion at the end of this summer.

Nearby, another boldly innovative cultural project is under construction: the $130 million addition to the Royal Ontario Museum (the largest museum in Canada) by Libeskind, called the Michael A. Lee-Chin Crystal after its donor. Libeskind, with Toronto firm Bregman + Hamann Architects, has designed 220,000 square feet of new and renovated space, including galleries, studios, workshops, and two theaters, to open in December 2005. The addition's angular, crystalline metal and

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glass forms present a sharp contrast to the museum's traditional exterior and have turned more than a few heads in Toronto's design community.

ROM is part of a cultural precinct with the nearby Royal Conservatory of Music and Gardiner Museum of Ceramic Art, both of which are undergoing major expansions and renovations by Kuwabara Payne McKenna Blumberg (KPMB), one of Toronto's busiest firms. KPMB is also designing Festival Centre and Tower (a permanent home for the Toronto International Film Festival) to open in 2008, and a new campus for the National Ballet School that will open this December.

Adding to the fast-growing cultural mix is the $113 million Four Seasons Centre for the Performing Arts, a new opera house under construction by Diamond and Schmitt. Sponsored largely by Four Seasons Hotels and located on the prominent corner of Queen Street and University Avenue, the Four Seasons Centre will feature a five-story, glass-enclosed "City Room" lobby that will have dramatic views of the streetscape below. The 2,000-seat home of the Canadian Opera Company will open in fall 2006.

University projects

Cultural development is not limited to public buildings. At the heart of the city, the University of Toronto's St. George campus is also undergoing a dramatic transformation, with multiple contemporary building projects by notable architects comprising approximately $800 million in total construction at the campus and at two smaller suburban campuses. At press time, the university had 33 buildings in design or construction. Highlights include the $55 million Leslie L. Don Pharmacy Building by London's Foster and Partners due to open in fall 2005; the $80 million Centre for Molecular and Biological Research by Behnisch Behnisch & Partner of Stuttgart, Germany, with Toronto's architectsAlliance, opening in fall 2005; the $24 million Woodsworth College Residence by architectsAlliance opening this year; a 277-unit college residence by saucier + perrotte completed in 2003 for $21 million; and a $3.5 million day-care center by Teeple Architects completed last year. Diamond and Schmitt also recently completed the $83 million Bahen Centre for Information Technology.

Leslie L. Don Pharmacy Building.

Richards says the university did not have prescriptive guidelines for the new structures. Although all share a Modern aesthetic, "It's evolved organically," he says. "I think the eclecticism of this campus suits this city and suits this university."

And the architecture graduates of the University of Toronto and nearby University of Waterloo, many of whom are now seasoned designers with their own firms, do not seem to be hampered by their city's historic context in designing contemporary architecture. Adrian DiCastri, a partner in the firm architectsAlliance, one of the newer and fastest-growing firms in the city, notes that the refined design quality among Toronto architects can be attributed to the "maturation of young firms now doing institutional work in the past five years." Toronto architects, with a few visiting star architects, may soon offer the rest of North America lessons in contemporary architectural practice and city building. ■

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Limping our way to universal design: Everything looks different on crutches

Critique

By Michael Sorkin

We cripples see the city a little differently. Where two months ago I bestrode New York like a colossus, roaming freely, scampering up stairs, jaywalking with the best of them, I now find the city reorganized as an obstacle course. The accident that precipitated this was the result of what turned out to be a needless trip uptown. It had been snowing, and my wife cautioned me as I left home about slipping on the ice. This is a frequent wintertime comment of hers, signifying both familial concern and a critique of the fact that I feel that Top-Siders are appropriate year-round for flâneurs like me, assuming sufficient care and grace are displayed.

Her cautions also had more serious credibility in that we had both suffered fractures from falls on the ice the previous two years, hers more recently. To cut to the chase, I slipped on the ice as I was heading down 145th Street to the A train and badly broke my ankle. As I lay on the sidewalk, looking at my dangling foot and at the bone poking at the skin, trying not to pass out from the pain, I knew things were going to be different for a while.

Two passersby dragged me to an adjacent stoop and spoke comfortingly. Cell phones were whipped out up and down the block and 911 was quickly dialed. Within five minutes an ambulance had arrived and I was being loaded in. The first truth of the experience emerged: Faced with the suffering and incapacity of a stranger, most citizens behave with kindness and appropriate dispatch, although there are still those who let doors slam in my face or who honk impatiently as I've struggled out of a cab.

Warning: uneven surfaces

Mobility is, of course, the primary issue for a handicapped person negotiating the city. I got my first dose of the fresh contingencies I now experience on the ambulance ride to the hospital. While delays in traffic were no surprise, the pain transmitted to my leg from the rutted roadway of the East Side Drive was awful: What is annoying on a cab ride can be torture in an ambulance. As I came to learn, the unevenness of surfaces is a major issue for urban mobility. This can be encountered riding in the street; walking down the sidewalk and negotiating curbs; or within buildings where loose stair treads, missing tiles, unsecured carpet, and a thousand other perils present themselves.

The range of barriers is great. Heavy doors are tough. Revolving doors are too fast and too small. Narrow spaces are challenging. Even the office of my crack orthopedic surgeon is filled with obstacles, especially for those in wheelchairs. The sharp and narrow corner between the receptionist and the waiting room is daunting. The bathroom door is too heavy to be easily opened with one crutch-holding hand while balancing on one foot. Even the entry to the building—filled with orthopedists—requires descending a series of steps with no handrail, risky in the rain. Only on my second visit did I discover the handicapped ramp. As it turns out, these are often installed in a spirit that is short on convenience, longer on the letter of the law. At the surgeon's building, the ramp is located so far off to one side of the entry plaza as to effectively double the distance from the curb to the front door. What is gained in easy inclination is lost in the extra exertion of length.

How about a crutch clip?

The instruments of mobility are themselves fraught and amazingly underdeveloped. My lightweight, Chinese-manufactured aluminum crutches are well made and easily adjustable. I am now pretty fast on my foot but sometimes forget to be vigilant about watching the ground in front of me for obstacles, which are profuse. The nightmare, for me, is at the end of the day when I return to our fifth-floor walk-up apartment. Climbing up is slow and tiring, and it's all I can do to propel myself to the horizontal when I finally arrive. To keep my balance on the stairs, I hold on to the railing. This raises the question of what to do with the second crutch. I have learned, when on the stairs, to hold the unnecessary appliance in the same hand as the crutch being used. Indeed, I have now become sufficiently adept to hold the mail as well. Might it be possible to include a crutch clip on each crutch to enable its mate to be carried during one-crutch excursions?

At the other end of the spectrum of mobility are the cabs that are now central to my movement in the city. The standard-issue American backseat is extremely unfriendly to those of us with boots and casts, who lack the ability to turn our feet or ankles to fit into the contracted legroom or to get down to or up from low-lying seats. As I wait for a cab, I mutter my silent appeal that one of the new "stretch" cabs—a few extra inches make a tremendous difference—or a minivan will come my way. That after all these years—with the vanished example of the Checker or the sensible London taxi in mind—our cabs remain so poorly designed is a tribute to the stupidity and greed of the auto industry and the indifference of public regulators. In a city where the cost of a taxi medallion approaches $200,000—and their

Contributing editor Michael Sorkin heads the urban planning program at the City College of New York.

number is artificially limited—it would seem a slam dunk to require accessible design (and let's add safety and zero emissions to the basic requirements).

(Re)construction drawing

My ankle, however, has become a fabulous piece of design. As I was wheeled into the operating theater to have my bones repaired, I noticed a wonderful drawing on the wall. It had been done by the surgeon on tracing paper, laid over an X-ray of my fractures. The work depicted the various screws and plates he was intending to implant, a working drawing. As I succumbed to the anesthesia, a couple of thoughts drifted into my head. First, that the surgeon was a kindred spirit, working in the same representational medium we do. And second, wondering what was going to happen when I first confronted an airport magnetometer.

A couple of weeks ago, I found out. My ankle, previously no more than the connection between my leg and foot, had been transformed into an object of suspicion, and I joined the queue of the lame, halt, and blind who were getting the extra once-over from security, immobility compounding itself, insult added to injury. My scar was probed with care lest I was carrying an ankle bomb. The airport was a giant ordeal, partly overcome by navigating it in a wheelchair. Of course, one would not ask for a wheelchair if the infirmity were not highly and legitimatingly visible. What, I wonder, will I do when the boot comes off and a cane substitutes for crutches. I will certainly walk the concourse miles, bucking crowds and distance, as I slowly make my way to my connection.

The plane itself is even worse. My injury had forced the cancellation of trips to Taiwan and South Africa (not wanting to risk deep vein thrombosis, infection, and various other ailments), and my maiden journey was a shorter one, although requiring a change. The seat pitch was impossibly narrow, and I began the dance of stretching my bad foot out in the aisle and removing it for passing passengers and flight attendants and their beverage trolleys. Having put my crutches in the overhead bin, going to the bathroom became a big issue. With the crutches unavailable behind piles of luggage, I was forced to hop my way to the back of the plane on my good foot, risking a fall on every turbulent bump.

A new perspective

In the great scheme of things, my injury is not so serious, and I will eventually resume walking. But my designs and my reading of the accessibility of the city will be affected permanently. Looking at the ADA infrastructure with which the city is being retrofitted, I can't help but get the feeling that all of this work is generally treated as an afterthought. Of course, it is an afterthought and a necessary one. But the spirit appears equally in refits and new construction in which a person's fitness remains the default for participation. The idea of reducing barriers is simple and elegant, one that should spark invention, not snide remarks or resentment.

I will also be cautious about the appealing surgical metaphor for our profession. My excellent surgeon reflected the doctor's view of the body, formed from the inside out, ending at the membrane of the skin. Architects, to successfully house us, must come from the other direction. Along the seam of capacity, the two professions meet. Our job, after all, is accommodation, and that means everyone, not some statistical modular or formal abstraction. The profession needs to overcome its indifference to this very real difference among us. Architecture will be better for it. ■

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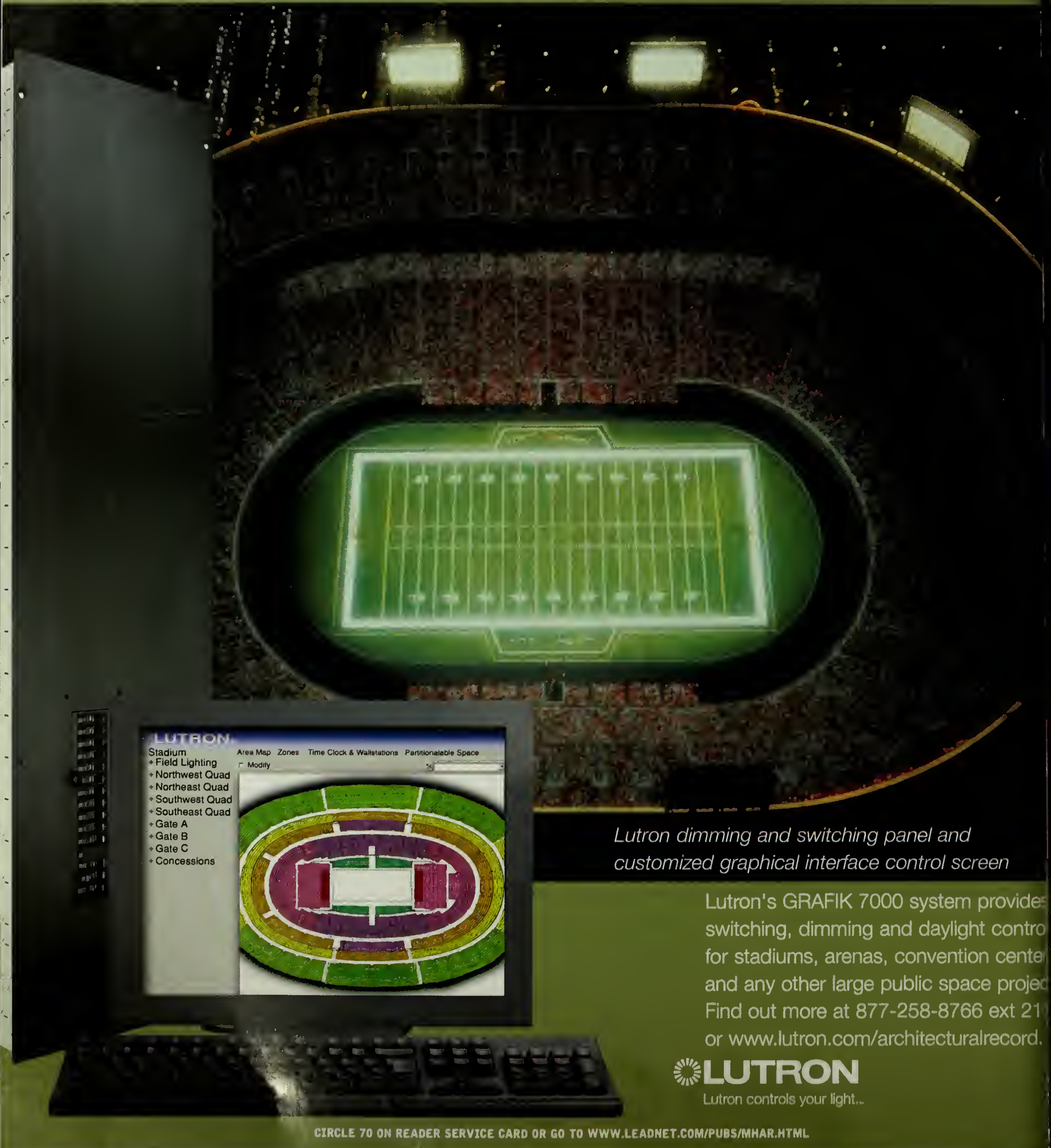

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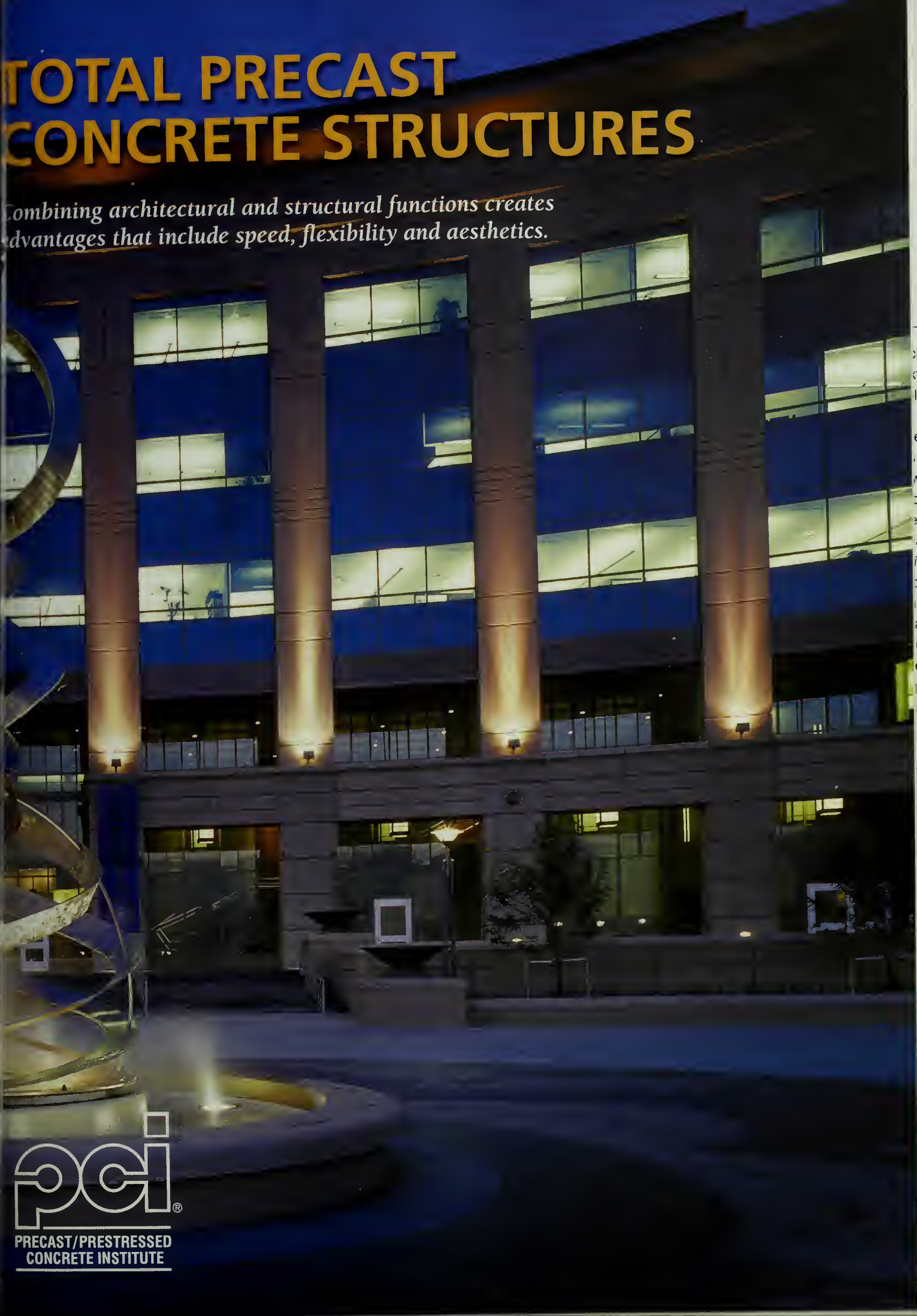
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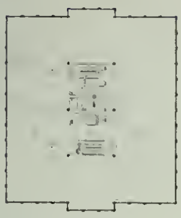
Precasters can provide finish samples, range samples and large-scale mockups, ensuring that design concepts translate into reality. Designers can inspect window interfaces, joint connections and other critical elements to ensure they are visually acceptable and will properly interface between trades. Plant visits to discuss technical and aesthetic concerns provide control without requiring constant site supervision.

Green design

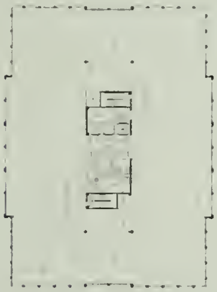
Precast concrete offers a number of benefits that make it environmentally friendly, a growing need as the Leadership in Energy & Environmental Design (LEED) criteria become more popular. Precast requires fewer chemicals to keep it clean over its long lifetime, and it offers a high thermal mass. It can be produced locally and creates no job waste. Cement reducers such as fly ash and other admixtures also aid its environmental friendliness. And its high durability gives it a total service life that far outpaces designs using other building materials.

Tight floor-to-floor heights

Precast concrete systems sometimes fit within alternative system depths but shouldn't add more than approximately eight inches to each floor level, creating an approximate 5-percent increase in exterior wall material. This slight addition is easily overcome by working with the precaster to make effective use of the overall floor-plan shape and using the benefits precast provides in repetition of component fabrication.



Crescent VII



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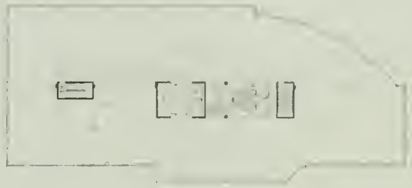

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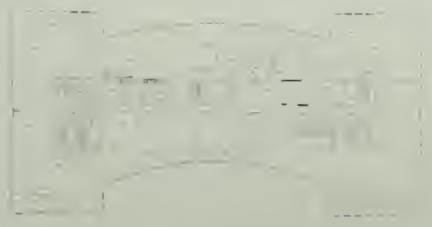

Aurora

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Precast concrete components allow architects to create any floor-plan configuration desired.

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The Total Solution for the General CONTRACTOR

General contractors find precast concrete components make their job easier at the site, ensuring a smooth process for the owner and designer in both the short and long terms.

Construction speed

Time is money for the entire construction team. Precast concrete's speed through design, fabrication and erection help meet tight deadlines. This particularly aids contractors when permitting processes slow down or unforeseen delays arise at the site due to soil conditions or other factors. Precast structural systems are ready to be erected when the contractor is prepared.

All-weather construction

Contractors can minimize the added "cushion" created in schedules to accommodate bad weather conditions, since precast components can be produced and erected all year round. The roughened surface of precast components does not become slick or difficult to handle in harsh weather as other building materials can.

Foundation aid

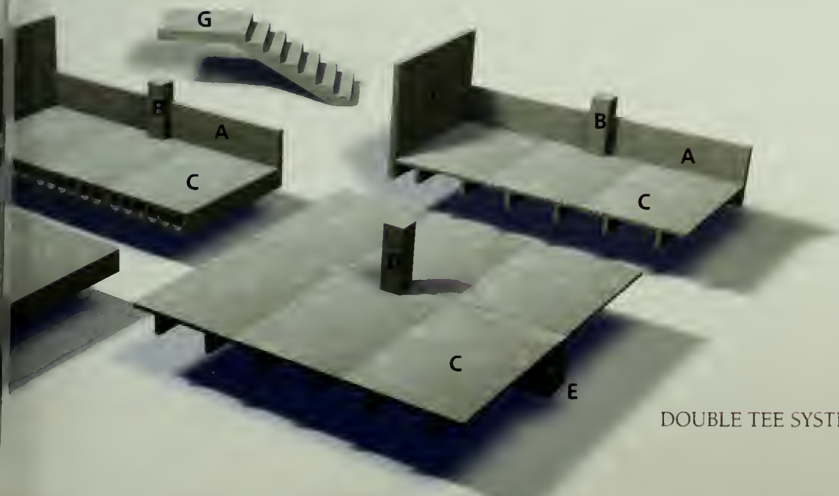
Total precast systems can minimize foundation work by having sills designed as grade beams and basement walls and core walls designed as precast panels. The components can be fabricated in advance and laid into place as soon as the site is ready.

Fireproofing

This messy, time-consuming job can be eliminated, along with the need to patch and rework after other trades finish at the project's later stages. Precast members are naturally fire protected, because they will not burn.

Smooth erection

Because precast concrete pieces are fabricated in controlled conditions using high-quality procedures, designs more exactly meet specifications. Field adjustments thereby are reduced, creating a smooth erection process with minimal surprises.



A. Load-bearing architectural spandrel
B. Exterior column
C. Double tee or Hollowcore plank
D. Interior column
E. Inverted tee beam or Composite Beam
F. Shear wall
G. Stairs

DOUBLE TEE SYSTEM

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The Total Solution for the Structural

ENGINEER

Structural engineers report no difficulty in learning to design with total precast concrete systems. They also benefit from the material's ease of use and efficiency.

Lateral design flexibility

Combining architecture and structure provides efficiencies in many buildings' lateral support systems. External elements, typically cladding-on-steel or concrete-framing systems, can become laterally stiff and resist wind and earthquake forces. Parallel efforts by the precast engineer can provide the structural engineer with specific input ahead of final construction document preparation, limiting shop-drawing review effort and redesign.

All-in-one components

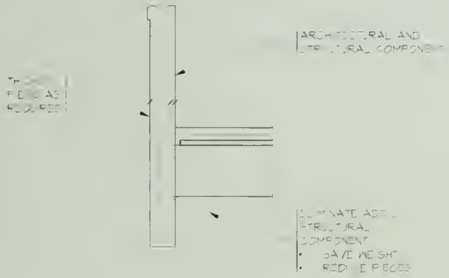
Total precast concrete systems allow the architectural panels to serve structural functions, limiting the need to incorporate multiple materials and trades. For instance, spandrel panels support floor systems and windows while providing final exterior finishes. Or sill panels are used as grade beams, retain soil, support windows and provide the architectural exterior finish, avoiding complex cladding systems. Combining exterior spandrels into the structural system provides deeper elements, limiting deflections and the complexities of designing for relative movements between frame and cladding system. Precast cores support floor systems while providing secure and fire rated enclosures for elevators and stair functions.

Comprehensive drawing

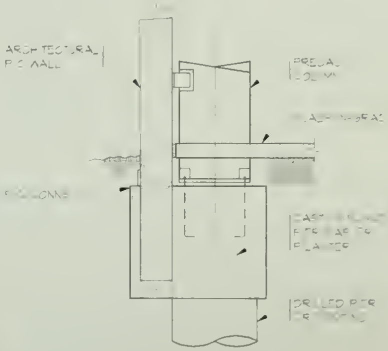
A total precast concrete system ensures one-stop shopping for the core/shell design. One source can design and supply the entire system, generating a better coordinated set of drawings that allows construction to proceed more efficiently. It eliminates the added effort needed to coordinate various trades when using mixed systems controlled by different suppliers.

Easy handling

Site construction moves smoothly because no special equipment or techniques are required to transport or lift combined structural and architectural components. These types of activities often can require additional structural review and exposure.



Total precast concrete systems can provide dual-use components by combining architectural and structural needs into one piece.



Cost and time can be saved by combining a precast concrete panel with foundation components, taking full advantage of the material's adaptability.

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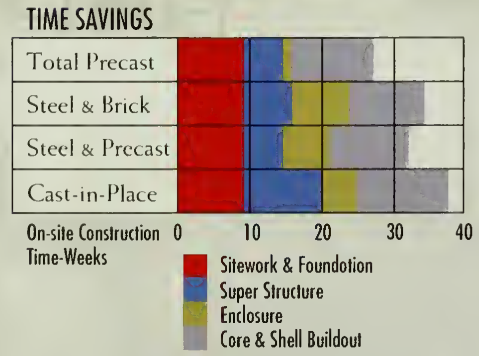
TOTAL PRECAST

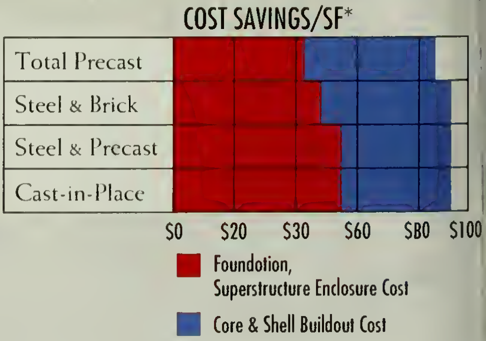
TOTAL PRECAST CONCRETE SYSTEMS vs. OTHER

BENEFITS	PRECAST	CAST-IN-PLACE	STEEL
Everyday Design Flexibility	✓	✓	✓
High Performance/Low Maintenance	✓	✓	✓
Fast Construction—Year Round	✓		
Factory Controlled Quality—Certified Plants	✓		
Low Cost/Labor Savings	✓		

COSTS			
General Conditions	Lowest	Highest	Higher
Structure & Enclosure	Lowest	Highest	Higher
Concrete Decks & Topping	Higher	Lowest	N/A
Shear Walls	Higher	Highest	Lowest
Fireproofing	Lowest*	Lowest*	Highest
Caulking	Lowest*	Lowest*	Highest
TOTAL	**Lowest**	**Highest**	**Higher**

Costs for fireproofing and caulking are the same for a total precast system and cast-in-place concrete.





Savings shown are based on comparisons – conducted by nationally-recognized estimating firm – of two prototypical office buildings: 1) a 4-story, 100,000 sf building; and 2) a 8-story, 200,000 sf building, both constructed with a total precast building system, and each with a footprint of 113' x 227'. These buildings were compared to similar prototypes constructed with steel or cast-in-place frames and brick-veneered or precast enclosures.

CONCRETE SYSTEMS mean SUCCESS

The benefits offered by total precast concrete systems accrue to the owner, architect, general contractor and structural engineer's bottom lines — and ultimately benefit the end user. The system provides an efficient design, cost effectiveness and a strong, durable appearance that will maintain its image throughout a long service life.

KEY BENEFITS

- Speed to market
- Design flexibility
- Aesthetic versatility
- High quality
- Low maintenance
- Environmentally friendly
- Strong engineering support
- Single-source supplier

To learn more about total precast concrete systems and the benefits that can be achieved, visit the Web site for the Precast/Prestressed Concrete Institute at **www. pci.org** *or talk with your local precaster.*

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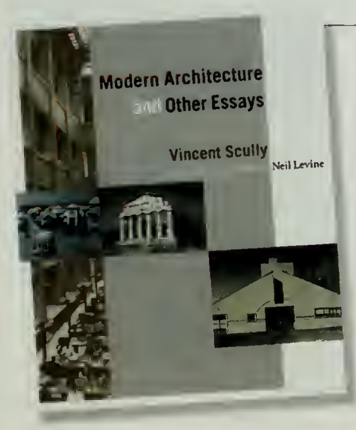
Collecting their thoughts: Two important writers select highlights from their careers

Books



odern Architecture and ther Essays, *by Vincent Scully, elected and with introductions y Neil Levine. Princeton, N.J.: rinceton University Press, 2003, 00 pages, $45.*

incent Scully is easily the most amous architectural historian of he last half of the 20th century, nd among the most influential. hat other architectural historian eceived a profile in *The New Yorker* nd front-page treatment from *The ew York Times* on the occasion of is retirement? Legendary for his ramatic lectures at Yale, where e began teaching in 1947, Scully ntroduced several generations of students to art and architecture. His appeal lay not just in dramatizing history, but, in his words, showing the importance of architecture as "creating forms of permanent humanity out of the utter impermanence of the human situation."

Best known as a historian of American architecture, Scully first drew attention in 1955 with his book *The Shingle Style*. His other writings were broad in subject matter, which included Greek temples, French gardens, Le Corbusier, pueblos, and European Modernism. However, the American condition always came first for him. Scully was one of the first to recognize Louis Kahn, and he wrote the introduction to Robert Venturi's *Complexity and Contradiction in Architecture* (1966).

Over the years, Scully grew disenchanted with certain aspects of Modern architecture and planning and embraced Postmodernism—which his Shingle Style writings helped to create—and more recently the New Urbanism of Andres Duany and Elizabeth Plater-Zyberk and others. This shift has dismayed some orthodox Modernists, but it illuminates Scully's willingness to reassess and calls to mind Emerson's famous observation: "A foolish consistency is the hobgoblin of little minds."

Modern Architecture and Other Essays consists of 20 essays and articles written between 1954 and 1999. The book, edited by Neil Levine, who teaches at Harvard and is a former Scully student, also includes a biographical sketch and a bibliography of Scully's writings. The essays cover topics ranging from American wooden houses of the 19th century to recent town-planning issues and Frank Gehry's Guggenheim in Bilbao.

Scully admires Bilbao as reproducing "the shapes of the conical hills," and writes that it has "sailed boldly up the river, and rammed into the main highway bridge, buckling under the impact, … lunging at passersby like a monster fish with silver scales."

The book also includes numerous essays about Greek, Roman, and Classical art and architecture. At bottom, no matter how much Scully admires Wright, Le Corbusier, and American suburban houses (of a certain period), he has shown a lurking Classicism and an empathy with ancient ruins. This comes forth frequently, and in the case of Kahn, it is how many of us—through Scully—understand him. "Kahn provided a kind of primitive new beginning for architecture," says Scully, and discovered "how to transform the ruins of ancient Rome into modern buildings."

Some of the essays in this book refer to controversies long past, and some have the heavy hand of academia, but overall they provide wide-ranging insights into the architectural thought of the past half-century by a central figure. Despite their sometimes pessimistic air, most of the essays end with uplift or an appeal. Scully concludes with a consideration of American city planning and attempts at public housing, declaring, "Once we did this right in the United States, and with the help of the Almighty, we'll do it again." *Richard Guy Wilson*

Labour, Work and Architecture: Collected Essays on Architecture and Design, *by Kenneth Frampton. New York: Phaidon, 2002, 352 pages, $50.*

In these collected essays, Kenneth Frampton provides a chronological overview of his career, placing each essay in a historical context. Frampton divides his anthology into three parts: theory, history, and criticism. This allows many potential overlaps, as he notes in his preface.

The selection unfolds with a clear logic. In the introduction to the theory section, the author explains the enormous impact Hannah Arendt's *The Human Condition* had on him as he left London for Princeton in 1965. The result was his essay, "The Status of Man and His Objects," in which he sought an engaged autonomy descended from the Frankfurt School's critique of modern industrialism, Marxism, and totalitarian regimes. Paul Ricoeur's 1961 essay "Universal Civilization and National Cultures" prompted his next seminal leap, "Towards a Critical Regionalism: Six Points for an Architecture of Resistance." The theory section of the book ends with "Rappel a l'Ordre: The Case for the Tectonic," an attack on the scenographic in Postmodern architecture and a plea for a return to tectonics as the key to an autonomous archi-

tectural culture rooted in both global and local traditions.

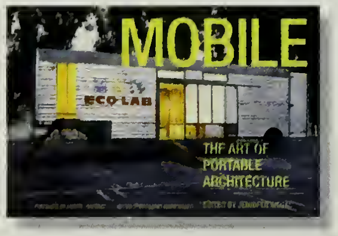
The history and criticism sections trace Frampton's writings from Modernism to Postmodernism and beyond. Included are essays on Russian Constructivism, El Lissitzky, Team X, Louis Kahn, Loos, Le Corbusier, and finally, "The Legacy of Alvar Aalto." The reprinting of such classics as "The Humanist versus the Utilitarian Ideal" and "Maison de Verre as a Bachelor Machine" is a reminder of Frampton's deep passion for a machinelike beauty in architecture.

In the introduction to the last section, Frampton confesses to practicing what Manfredo Tafuri deplored as "operative criticism," a form of critical advocacy for preferred architects. The book includes early essays on Stirling and Gowan's Leicester Laboratories (1964) and Hans Scharoun's "equally canonic" Philharmonie Building in Berlin (1965), then ones on Herman Hertzberger, Alvaro Siza, and Tadao Ando. The surprise of this section is a previously unpublished 1981 appreciation of Rafael Moneo's stern, geometric, brick Bankinter Building in Madrid, which opened in 1973.

Through his artful selection and new introductions, Frampton gives unity to his critical voice, which has spanned the shift from Modernism to Postmodernism. This is a magisterial summation of a life's work that is far from over, as the new essay, "On the Predicament of Architecture at the Turn of the Century," makes clear. *Grahame Shane*

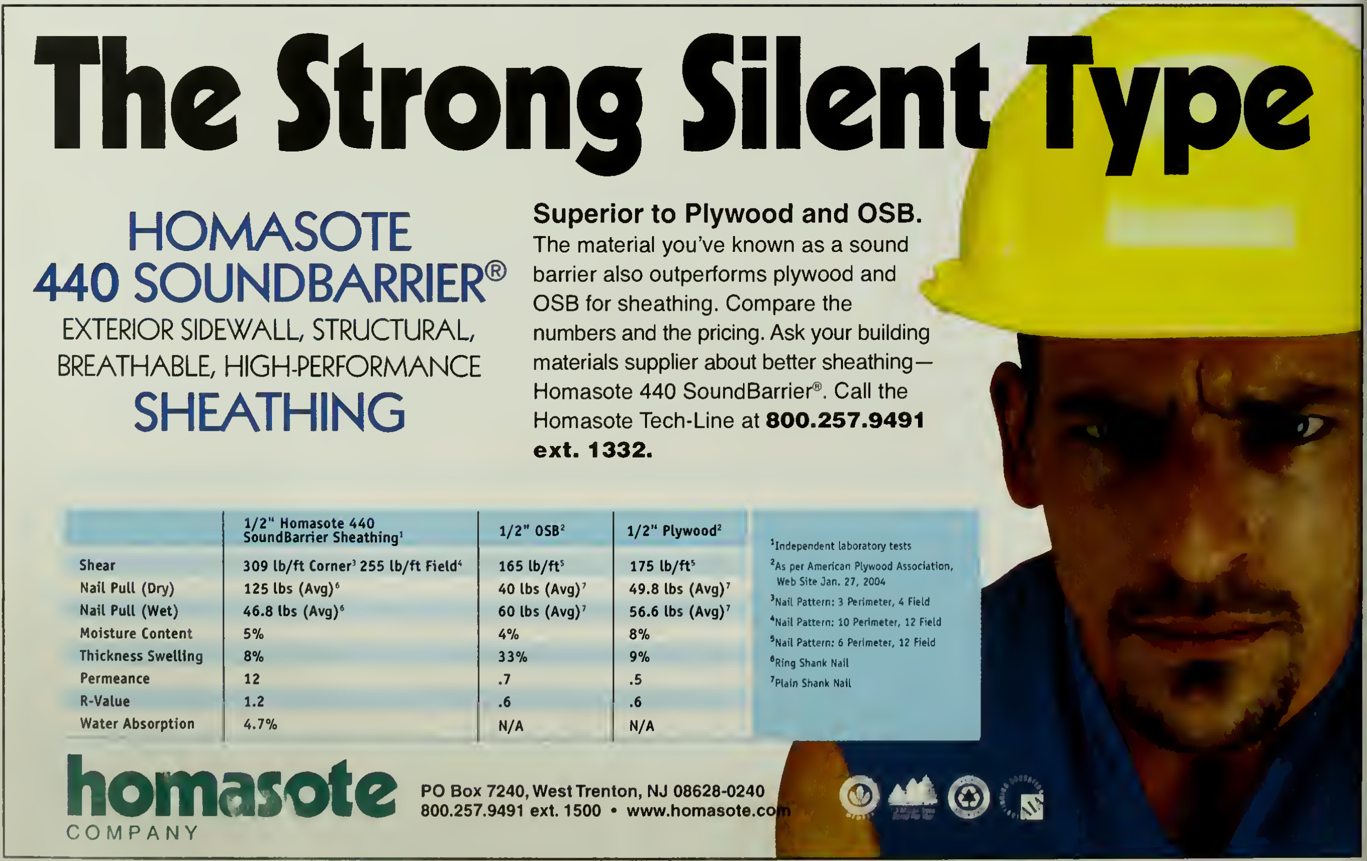
Mobile: The Art of Portable Architecture, *edited by Jennifer Siegal, foreward by Andrei Codrescu, preface by Robert Kronenburg. New York: Princeton Architectural Press, 2002, 128 pages, $20.*

At first glance, this book has the air of the ridiculous (a personal island attached to a rowboat, a car that lifts itself to become a four-story mini-hotel). But closer reading reveals a serious, if abbreviated, study of how architects, engineers, and designers interpret the eternal human condition of nomadism in the Information Age, when home and work can be anywhere at any time. Modern portable structures, it turns out, date back to 1830, when Londoner John Manning invented the Manning Portable Colonial Cottage; the editor of *Mobile* brings us up to date with illustrations of reusable, high-strength-fabric buildings and interactive structures with parts that move according to outside conditions and the inhabitants' behavior.



True, some of the examples in the book are still only conceptual, but others, notably the amazing portable rock concert venues by The Mark Fisher Studio and FTL Happold, are already icons of a new generation. Other examples include Festo's pioneering Airtecture, an exhibition hall with air-filled, load-bearing structures, and LOT/EK's Mobile Dwelling Unit, which fits in a shipping container for transport but expands with pullout segments for living and work space. Editor Jennifer Siegal's own firm, Office of Mobile Design, has produced portable homes and buildings whose expanding and contracting spaces give a loftlike feel to structures the size of old mobile homes.

The "art" in the title is an integral part of the book's message. Apart from some hard-to-read pages using white type on a chartreuse background, the graphics are terrific. And the small size makes *Mobile* a perfect travel companion—witty and thought-provoking. Ideally, the book might pry some architects out of the safe and sure and get them looking at new ways of building. *Nan Chase*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Thickness Swelling	8%	33%	9%
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R-Value	1.2	.6	.6
Water Absorption	4.7%	N/A	N/A

[1] Independent laboratory tests
[2] As per American Plywood Association, Web Site Jan. 27, 2004
[3] Nail Pattern: 3 Perimeter, 4 Field
[4] Nail Pattern: 10 Perimeter, 12 Field
[5] Nail Pattern: 6 Perimeter, 12 Field
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Prefab, *by Allison Arieff and Bryan Burkhart, Kaysville, Utah: Gibbs-Smith Publishers, 2002, 160 pages, $40.*

Say “prefab” and most people think “cheap and ugly.” The prevailing view is well-earned: Prefab houses usually mimic old-timey, stick-built styles and are so poorly constructed as to be destined for early transfer to the dump. Meanwhile, prefab Blockbuster Video buildings, Holiday Inn Express motels, and McDonald's franchises are transforming varied landscapes into homogenous mediocrities. Why is this so, with all the vision and technology available today? Among the answers given by Allison Arieff, the editor in chief of *Dwell* magazine, are that financial institutions are unwilling to finance innovative prefab, developers are unwilling to change a winning formula, “and some architects fear that the further proliferation of prefab will put them out of business.” By presenting a collection of intriguing prefab dwellings, Arieff and the book's designer, Bryan Burkhart, hope to show what can be achieved with “this much-maligned building type.” A change in perceptions of prefab, they think, can help fill a gaping need for attractive, low-cost housing.

They begin by revealing how Le Corbusier, Frank Lloyd Wright, and Buckminster Fuller were fascinated by prefab structures. They show a gallery of innovative prefab housing, including the expandable and transportable “Fred” house by Austria's Kaufmann brothers, the affordable IKEA-designed apartment complexes being built throughout Sweden, and First Penthouse, luxurious rooftop apartments assembled in Sweden and craned into place in central London. The book then presents innovative conceptual projects that are shaping the future of prefab housing.

Prefab features work by more than 30 architects, including Shigeru Ban, Greg Lynn, and Heikkinen Komonen, in places as diverse as Japan, the United States, Chile, and Iceland. Does one finish the book believing in a new future for custom, mass-produced prefab housing? Well, almost. *A.O.D.*

Blowup: Inflatable Art, Architecture, and Design, *by Sean Topham. New York: Prestel, 2003, 160 pages, $30.*

This book starts with the statement, “Most inflatable design is rubbish.” Because inflatable technology can be frivolous, cheap, and disposable but has the potential to create monumental structures and preserve whole ecosystems, our reactions to it are all over the map. That's precisely what makes the subject so fascinating, according to author Sean Topham. Recalling the history of inflatable design and pneumatic technology (from children's toys and home furnishings to lunar habitats and military decoys), Topham reminds us that contemporary inflatables took form in the 1960s, when radical architecture collectives such as Archigram, Utopie, and Haus-Rucker-Co mapped out plans for inflatable cities. At the same time, such artists as Andy Warhol and Claes Oldenburg used air-filled objects to bring art out of galleries and into the streets. Topham examines all manner of air-filled objects, practical and absurd, boring and fascinating, and he writes about this often-silly art form with suitable irreverence. *A.O.D.*

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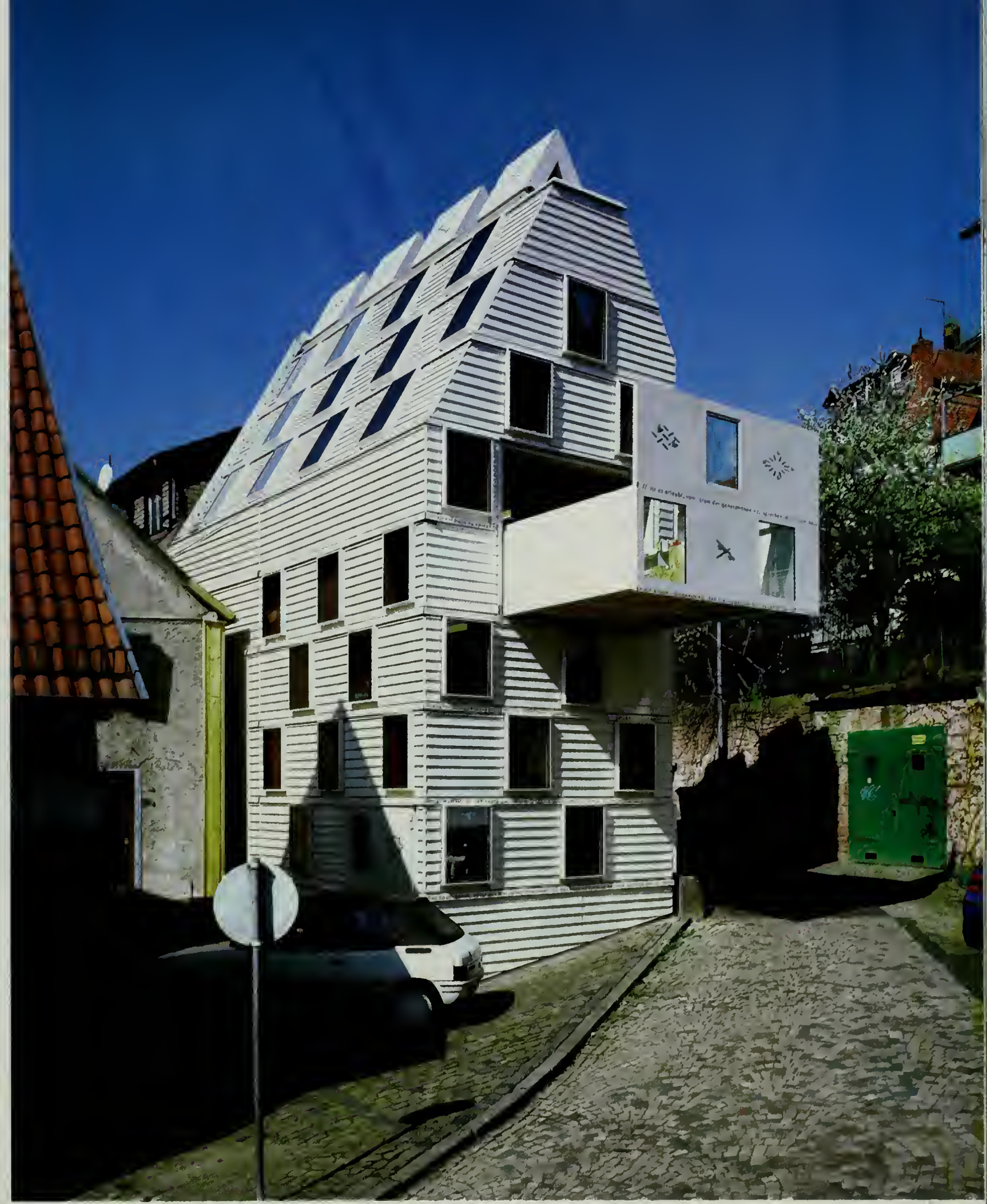


By Tracy Metz

A semikinetic facade turns a bedroom into a balcony

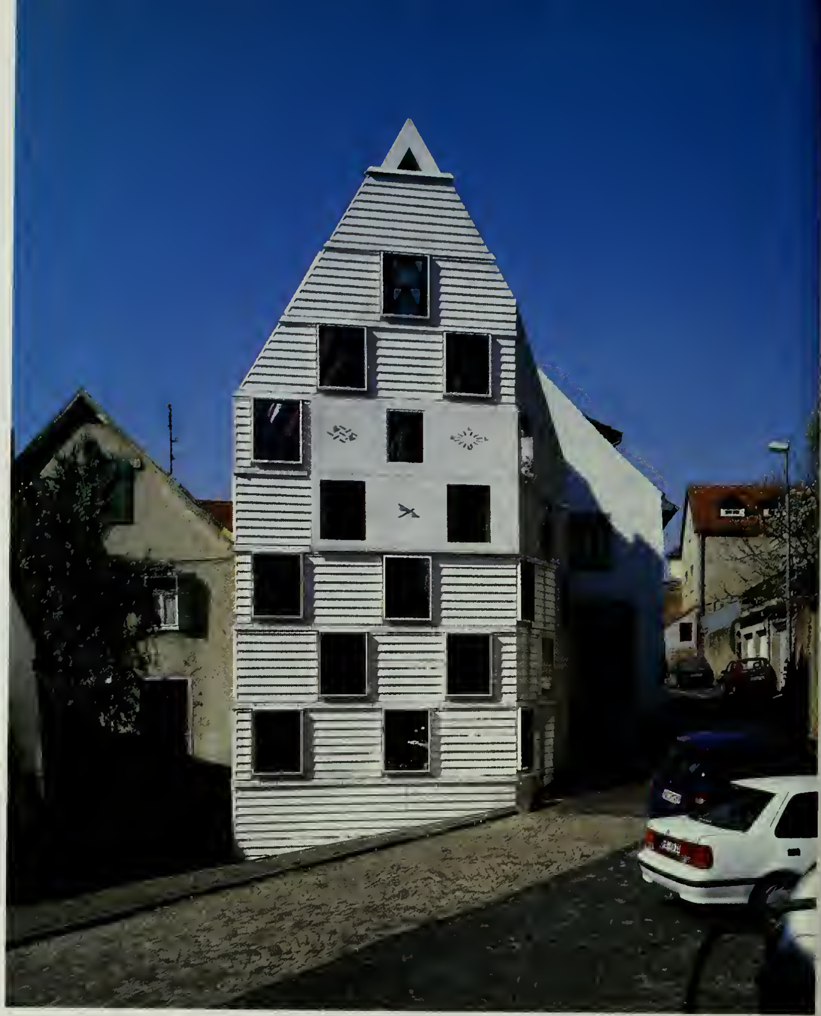
Evoking not merely a domestic lounge area, the house's name, Living Room, refers to a space for living—or a room that's alive. An abstract object designed by Frankfurt-based architects Gabriela Seifert and Götz Stöckmann, this project will appear in the upcoming Venice Biennale. In an unusual move, the designers convinced the town of Gelnhausen, some 25 miles north of Frankfurt, to let them demolish a dilapidated 300-year-old house in the medieval town center and erect a new building—a home and studio for Stöckmann—that replicates the volume and geometry of its predecessor. The architects then invited five artists and one poet to integrate site-specific work—painting, sculpture, poetry, and light and sound installations—including Charly Steiger's images on the outer wall, showing the site's earlier structure.

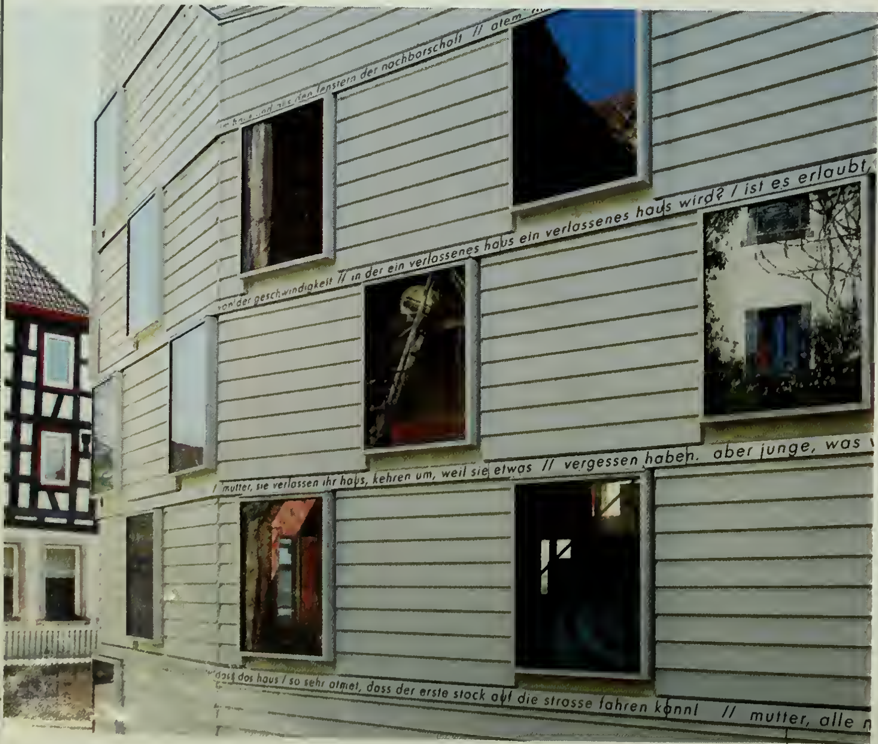
The new house, like the old, covers the entire 20-by-33-foot lot, but unlike its predecessor, features a semi-mobile facade. Remarkable as it may seem, a motorized section of the front elevation rolls out like a drawer, windows and all. Cantilevering 10 feet over the road, it serves as a retractable balcony and open-air sleeping nest.

Dividing the facade into checkerboard squares, Seifert and Stöckmann left one-third open, with 52 windows, and two-thirds closed. Ironically, the house's details render it abstract. The roof and exterior elevations form a continuous, seamless surface, covered in aluminum with punched windows. Rain flowing down the outer walls drains into metal gutters and through laser-cut letters spelling out a quote from Hans von Grimmelshausen's novel *Simplicissimus* (1669). Every few years, the building will change skins, as if donning a new ornamental jacket. Next time, a thin membrane of eggshell-white aluminum will make the windows completely flush.

"We think of the Living Room as a fundamental house, the minimum protective shell," Stöckmann asserts. Its balloon frame surrounds a massive 40-ton rock, set amid boulders and gravel like a dry riverbed. This internal garden negates distinctions between inside and out—as does the whole building. Upon entry, one can descend to this "riverbed" or ascend along a series of ramps and platforms. With functional areas—pantry, heating system, toilet, and bath—compressed into a deep back wall, the rest of the volume remains free.

Complex in its simplicity and vice versa, the Living Room offers a three-layered cosmic metaphor: Rock=Earth, Drawer =Journey of Life, and the Uppermost Level=Heaven. ■




den fenstern der nachbarschaft // atem
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dass das haus / so sehr atmet, dass der erste stock auf die strasse fahren konnl // mutter, alle

When the great "drawer" closes (top), the facade gives no hint of its kinetic potential. Words and images by artists and a poet are integral to the architecture (top and left). The drawer provides its bedroom with built-in storage (above).

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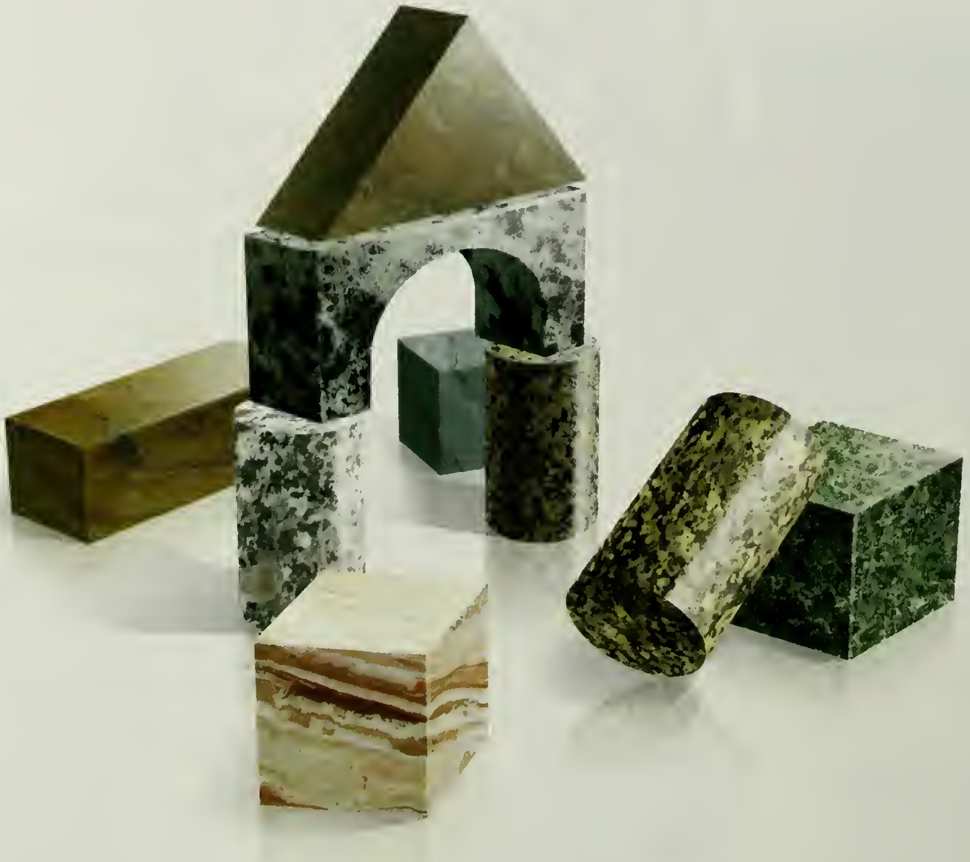

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A Smithson house evolves over decades

By Andrew Mead

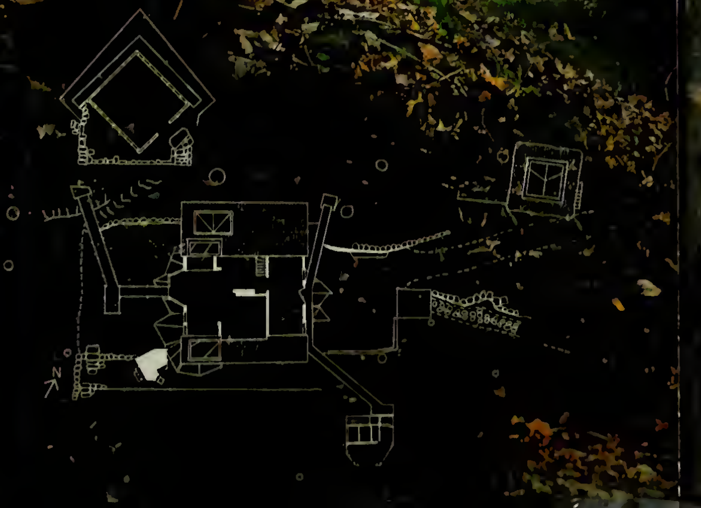
Not long before his death in March 2003, Peter Smithson completed a glazed pavilion set among ancient oaks on a hillside in central Germany. It was the last major element in a 19-year project: a series of accretions and interventions that transformed the Hexenhaus, home of furniture manufacturer Axel Bruchhäuser.

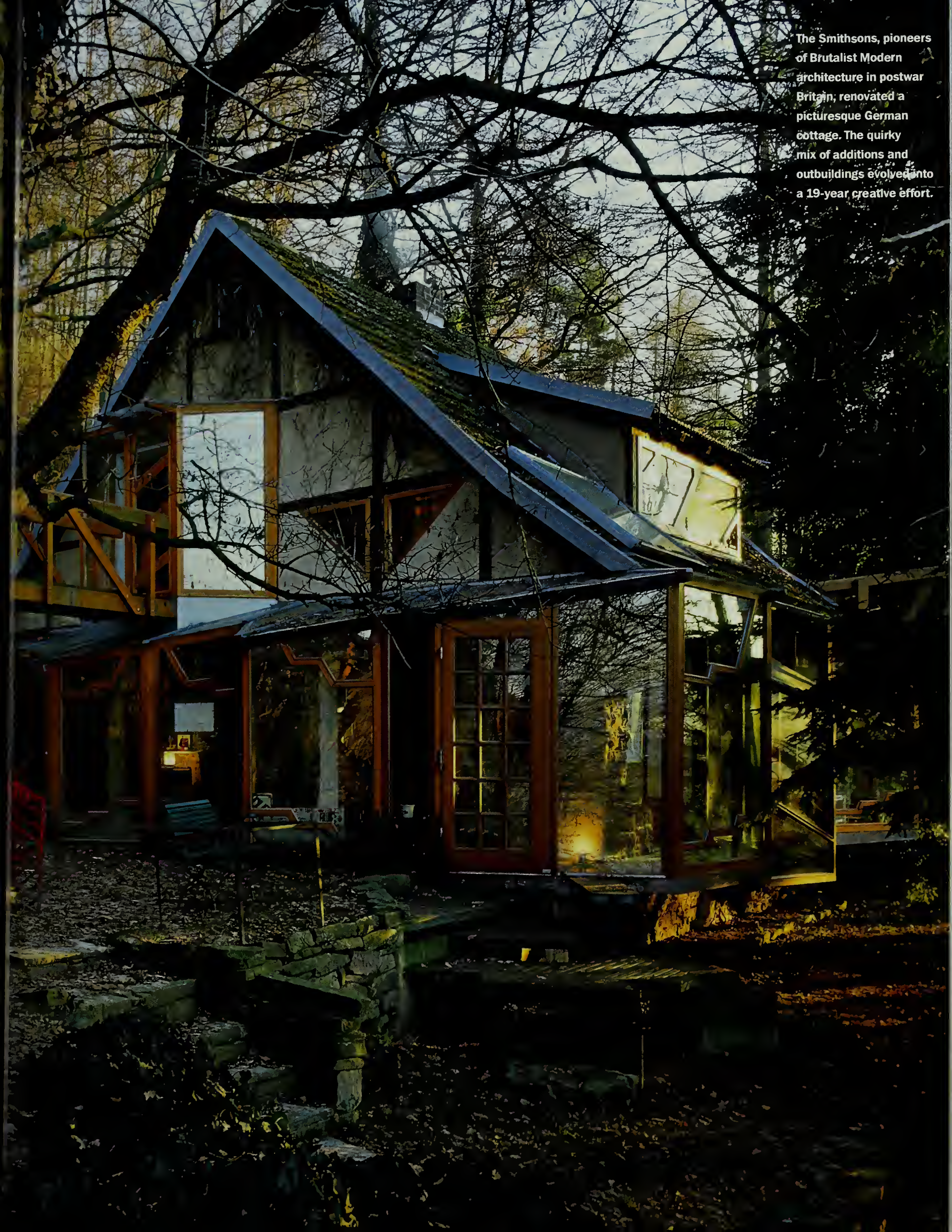
Smithson and his wife, Alison, who died in 1993, were dominant figures on the postwar British architectural scene. As "New Brutalists" (a term they reputedly coined), they opposed picturesque Modernism in the 1950s and '60s, advocating instead the unremitting rigor, honesty, and puritanical expression of materials, structure, and function. Their Miesian-style Hunstanton School (1954) and urbane Economist Building (1964) brought them acclaim for toughness, while their controversial Robin Hood Gardens in East London (1972) demonstrated a concern for high-quality social amenity in mass housing.

Today, some of the most thoughtful young practices in the U.K. and elsewhere are looking closely at the Smithsons' work, but in the 1970s and '80s, when Britain succumbed to Postmodern historicism, the couple was largely sidelined. So, in 1984, they welcomed Bruchhäuser's first modest Hexenhaus commission. The irony, of course, is that many a Postmodernist would have coveted the opportunity to work on this project.

Axel Bruchhäuser owns Tecta, which manufactures "classic" Modern furniture by such designers as Marcel Breuer and Jean Prouvé. He initially approached the Smithsons with a view to producing their

Andrew Mead, a London-based architectural writer, is review editor for The Architects' Journal.





The Smithsons, pioneers of Brutalist Modern architecture in postwar Britain, renovated a picturesque German cottage. The quirky mix of additions and outbuildings evolved into a 19-year creative effort.

Trundling Turk chair. But once he got to know them, he intimated a yet-undefined dissatisfaction with his house.

The Hexenhaus—built soon after World War II in the local vernacular of sandstone and half-timber, with a steeply pitched roof dipping low in the back—stands near the end of a narrow lane outside the small Baroque town of Bad Karlshafen. Set in the German region that had inspired the Brothers Grimm, the house impressed Alison Smithson right away with its "Hansel and Gretel" quality.

The property had acquired the local nickname of *Hexenhaus* (or Witch's House), which Bruchhäuser adopted when he bought the place in 1978 as a home for himself and his cat, Karlchen. The house was compact (just 1,950 square feet) but had 1.75 acres of grounds, mostly wooded hillside. Bruchhäuser saw it principally as a refuge from work: a place where contact with nature could revitalize him. At first, though, the building's introverted character impeded such direct contact. "I just told Alison I needed a new door," he recalls of the initial commission. But he soon realized that the structure was too enclosed and what he really desired was a place simply to "enjoy the views or sit when the rain comes."

Alison proposed adding a porch at the structure's southwest corner as a "calm cell in nature." This modest beginning would eventually lead to a series of Smithson commissions at Hexenhaus and the client's nearby Tecta factory. The process became "like working on a big estate, where the owner says, 'This year hasn't been bad—let's do so-and-so,' " recalled Peter. "Axel initiated all the changes from a problem he'd identified or an observation he'd made."

As built, the southwest porch reuses the house's originally paired French doors, now in two separate locations. Next to them, the architects placed new glass panes divided by wavy pine lattices, lyrically echoing tree branches. The lattice was already emerging as a recurrent Smithson theme, featured in such projects as St. Hilda's College Garden Building at Oxford (1970)—prompting Peter to comment on how this form affects views in and out. Lattices, he said, make us "conscious of seeing segments that isolate objects or collections of them, [causing us to] see strongly."

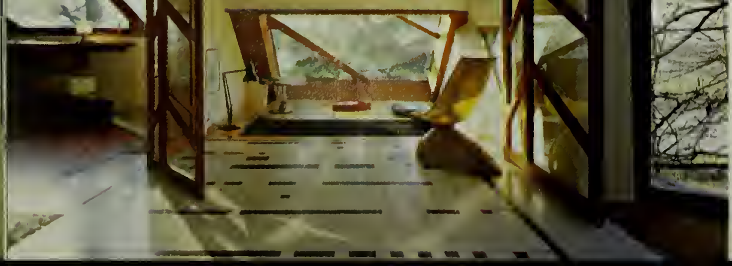
By contrast, the rectilinear glazing bars of the original French doors impose a rigid grid on any scene. One door now opens onto stairs down to a grassy terrace. From the interior travertine floor, you step onto slatted timber, then concrete block, and finally rough stone, before reaching the grass—a subtle visual and tactile transition from "culture" to "nature."

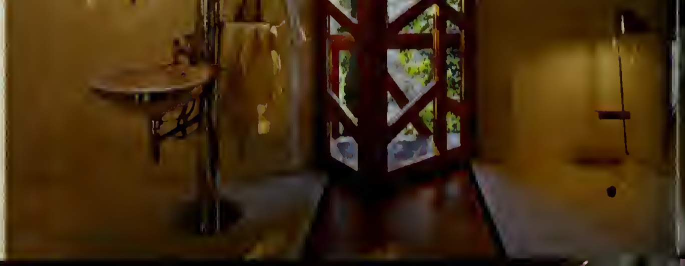
Establishing a vocabulary for the evolving Hexenhaus, this porch was the first "encrustation," as the Smithsons called it. Their idiosyncratic grafts onto the house would eventually include another porch at the entry, an extension of the first porch, a glazed bay for the bedroom, and a glass-floored bay window, looking toward the nearby River Weser. The river-view projection was angled to hold a seat for Bruchhäuser facing a perch for his cat.

The alterations do not merely change the building's overall ratio of glass to stone, but form pockets of space at its perimeter, intensifying the client's contact with nature. As Alison put it, the changes added "a layer of air" to the existing fabric, "a delicate tuning of the relationship of persons with place."

Along with the outgrowths came the "Hexenhaus holes"—excisions into the existing walls and ceilings that link inside and out in multiple directions. For example, from across the living room, through a semicircular cut in the kitchen wall, you see first one lattice screen and then another—successive frames through which, finally, segments of trees and foliage appear. From a Smithson Popova chair in the living room, Bruchhäuser can turn a complete circle to point out 10 separate vistas from inside to out, where new, glazed apertures puncture the once-solid wall. He explains, "I don't want the exposure of the Farnsworth House. I want to see out, but I need a sense of protection, as well."

Upstairs, the architects made primarily triangular cuts, taking cues from the house's original half-timbers. At this level, the low ceiling suddenly surges upward like a lopsided cone, with tree branches overhanging the skylight at its apex: "They've given me a cathedral dome," says Bruchhäuser. Here, the Hexenhaus seems to swell beyond its physical





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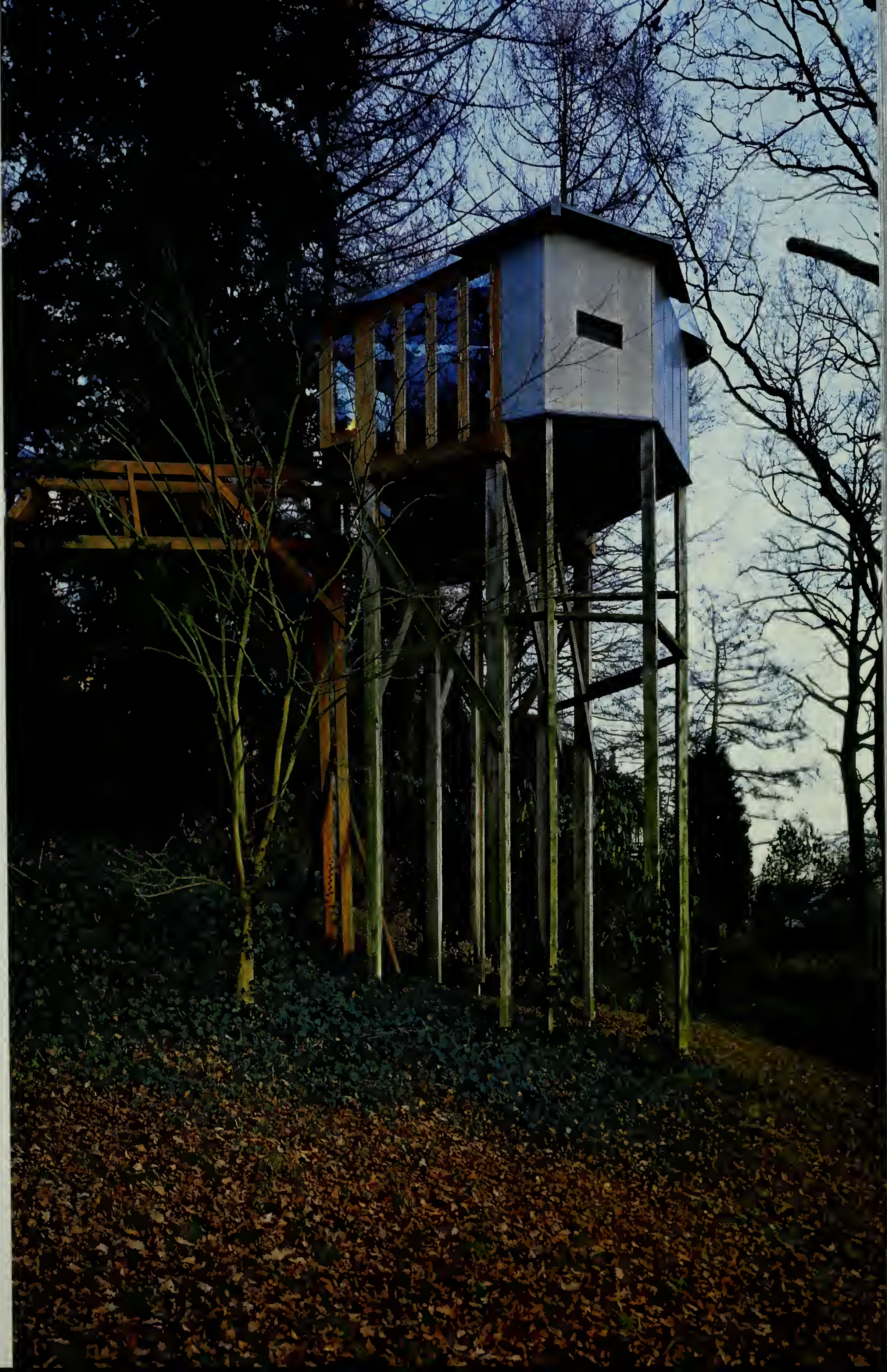
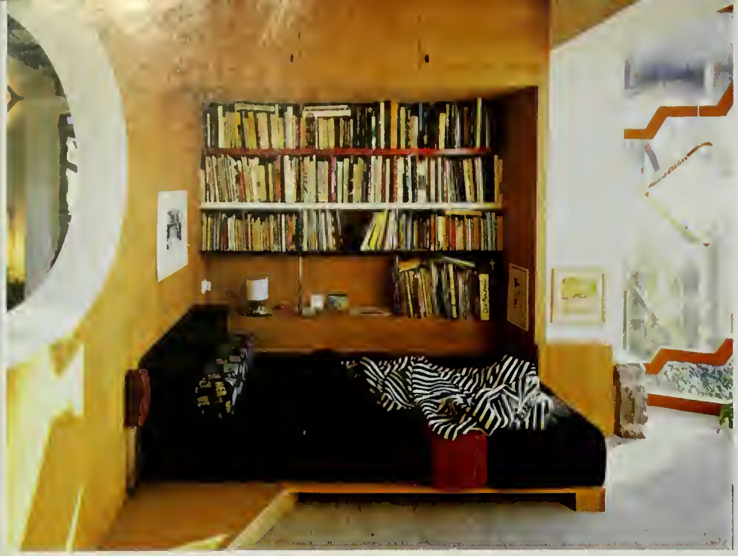
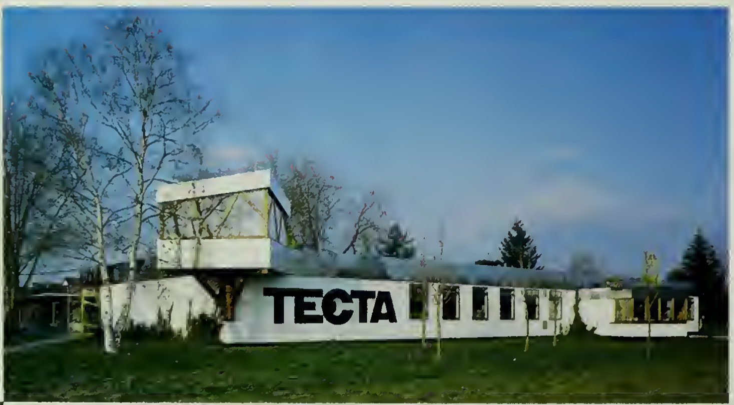




By carving openings and pushing out wall planes, the Smithsons expanded the sense of space in the house's sleeping alcove (above). The architects concurrently transformed Bruchhäuser's Tecta furniture factory (below).

The existing 1960s concrete building now features various accretions, including the glass-and-wood lookout (bottom, left), with its expressively timber-framed panoramic window (bottom, right).



boundaries, dispelling any sense of confinement.

Elsewhere on the site, the Smithsons more literally exceeded the Hexenhaus's original limits. They positioned new timber bridges and walkways in relation to existing paths and terraces, extending like arms into the landscape. These elements lead to satellite structures: a skylit teahouse, thatched with reeds, on a stone platform northeast of the house, and the Lantern Pavilion to the northwest, glazed on all sides and its roof, completely immersing its occupant in the woodland setting.

The Lantern Pavilion's floor is white marble, enhancing the sense of lightness by day and the glow from within by night. The architects gave its outdoor terrace irregular sandstone paving, providing another culture-to-nature transition. A place for contemplating the outdoors, the pavilion has two "halfmoon" windows set at an angle, echoing cuts inside the Hexenhaus and framing the landscape in a slightly unorthodox way.

But the most singular element of the whole project is another satellite, designed by Alison: the Hexenbesenraum (Witch's Broom Room), which Bruchhäuser also calls his "holiday home." A finely crafted pavilion (built by the local master carpenter who worked with the Smithsons throughout their time at Hexenhaus), it sits on stilts—nine 36-foot-long oak legs reinforced with steel—allowing it to sway gently, like a tree, in the breeze. Presenting a blank face to the lane, it has full-height windows on its other sides, a glass floor, and a partially glazed roof, providing an aerial observatory. Lying on a couch here, the owner can contemplate overhead trees in summer or falling leaves in autumn. Below it, reflections and reality fuse optically. "It's fantastic during storms," says Bruchhäuser. "The rain, the snow, come directly at you. Like a theater—it's so dramatic."

The Smithsons' prolonged and gradual transformation of the Hexenhaus and its site recalls their approach to campus expansion at the University of Bath (1978–90)—a process they likened to adding "tassels to the edge of an existing mat." There, they proposed 14 component buildings that could be constructed in any order as funds became available—a scenario that approximates the process at the Hexenhaus and, during the same period, at Bruchhäuser's Tecta furniture factory, where porches, pathways, and a timber lookout tower radically reconfigured a boxy, 1960s concrete-block building. At both Hexenhaus and Tecta, unlike Bath, the architects generated additions step by step over the years, rather than envisioning an overall scheme in advance. Like an organism, the Hexenhaus slowly took possession of its site, with the client emerging as a fully engaged patron. The house, including its satellites, now comprises 2,815 square feet. Bruchhäuser values not just the increase in space and amenity, but the greatly enhanced sensory engagement with nature and the feeling of rootedness in this particular place.

In achieving this end, the Smithsons worked mostly with traditional forms, which might almost make the project seem Postmodern. But whereas many Postmodernists were happy just to quote historic precedent, the Smithsons sought to reinterpret and revivify it—whether in dealing with a window, a porch, or a pavilion. This thinking can be traced back to their Sugden House (1957), which deftly subverted a suburban norm, while their Upper Lawn Pavilion (1962), incorporating the remains of an old stone cottage, anticipated the concept of "encrusting" an existing building. The Hexenhaus suggests, you could say, a softening of the puritanism of the couple's Brutalist period, but unlike most Postmodernist work, it maintains the integrity of architectonic expression.

"The Smithsons understood my needs exactly. To take such serious care for one person—for his soul—is unbelievable," says Bruchhäuser, who forged not just an unusually enduring working relationship, but also a firm friendship, with his architects, as surviving correspondence makes clear. What began as a request for a new door became a profound response to the real imperative of domestic design—to enrich everyday life. ■

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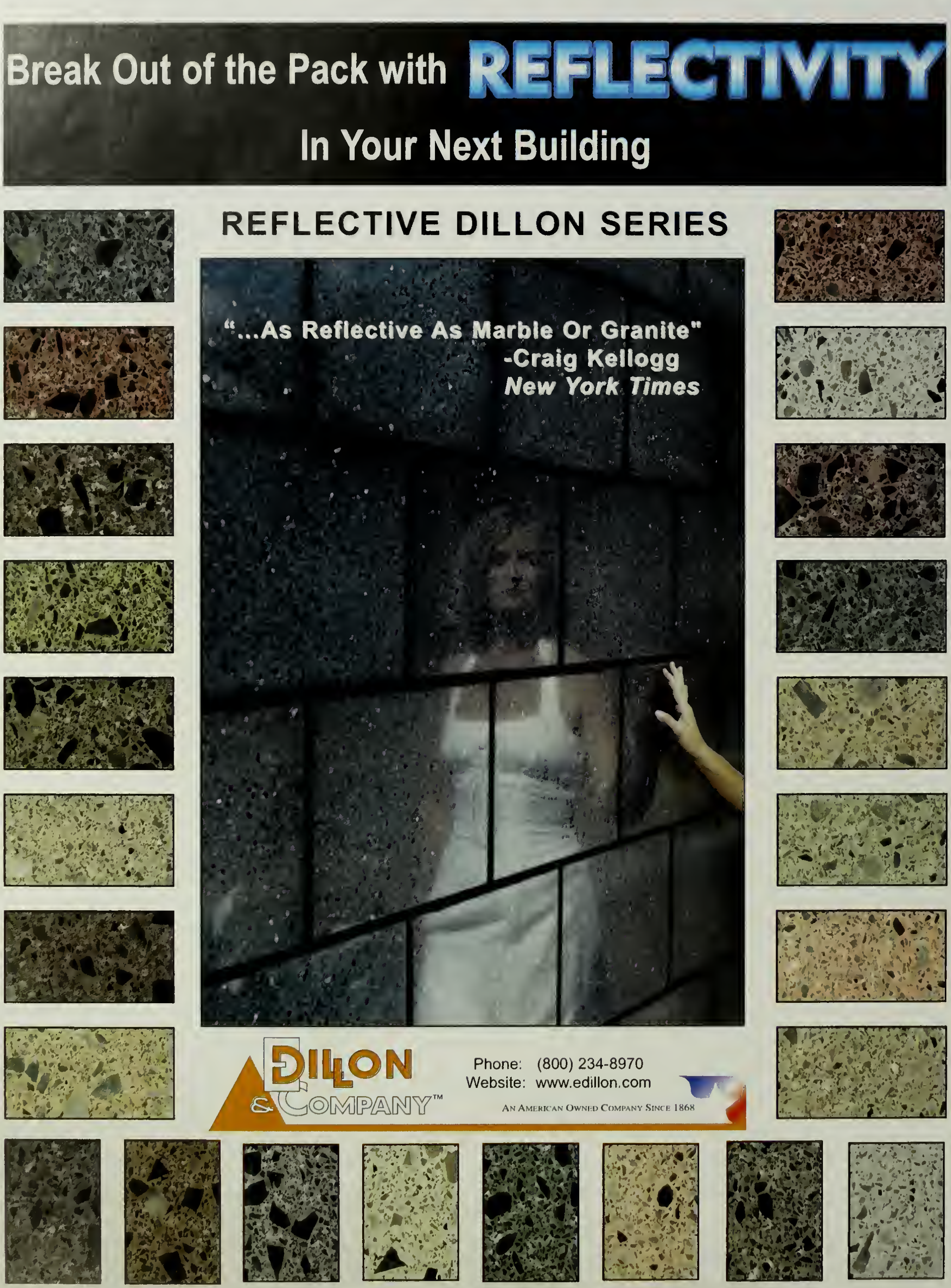

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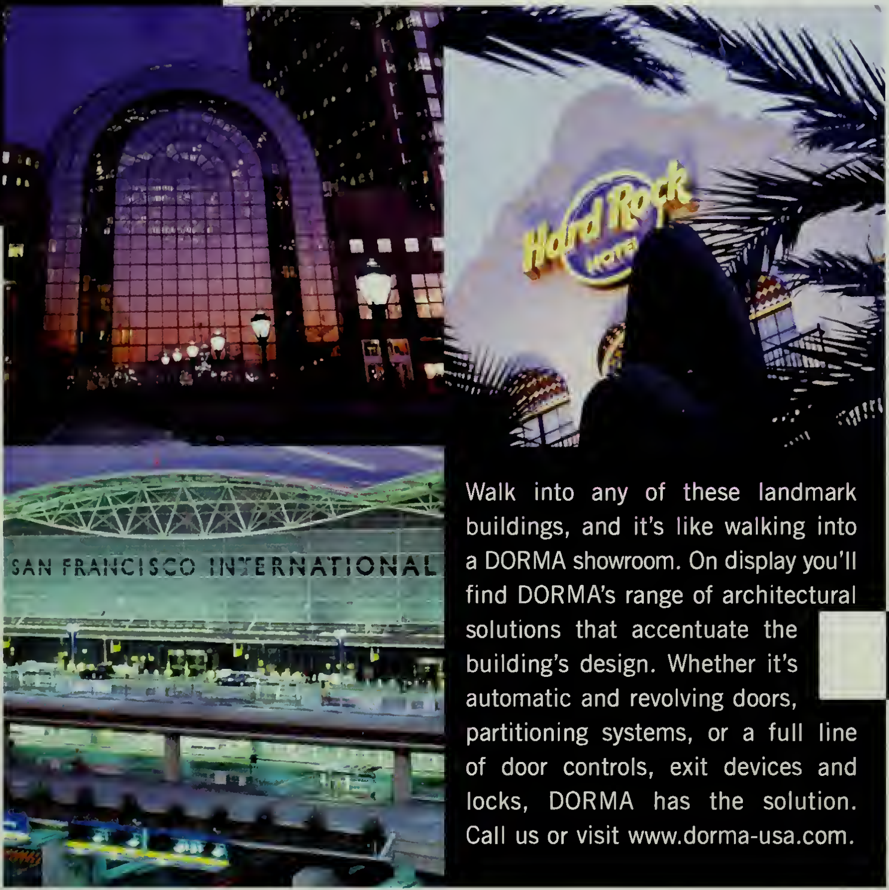

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Record Houses 2004

The dialogue between materials and place can be powerful, even palpable. The textures and hues of a house may merge with its landscape through elements that literally come from the natu- al setting. Or a design may respond more to a man-made context, ither echoing or remaining distinct from it. In other scenarios, a truly tark contrast, a sense of purposeful opposition, may be at play.

Record Houses 2004 delves into the range of possibility. Along a gritty waterfront in Kobe, Japan, for example, the smooth oncrete and pure rectilinear geometries of Tadao Ando's 4 x 4 House legantly distill the industrial character of its setting. In coastal Brazil, Marcio Kogan's Du Plessis House appears completely unlike, but emarkably compatible with, the ersatz haciendas around it, combinng a clean-edged Modernism with the rich tactile features and color variations of local mineira stone.

Meanwhile, the exposed and bolted cementitious board of Mack Scogin Merrill Elam's Bailey House Studio forms a light-handed juxtaposition with its woodland site, near Atlanta. In the Solar Tube House, on the outskirts of Vienna, Georg Driendl responds to another forest setting with glass and curved stainless steel, generating a shifting interplay between transparency and reflection.

By contrast, matte materials, caught in the sun's intense rays, contribute to a luminous effect at the Crowley House in Marfa, Texas. Here, amid expanses of dry tumbleweed, Carlos Jiménez draws on an intentionally ordinary and durable material palette (including concrete block) capable of withstanding the harsh climate while resonating with the plain, hardscrabble qualities of Marfa's typical sheds.

In upstate New York, Thomas Phifer's Spencertown House has the character of a low-slung, permeable earthwork, allowing views to "flow" through it. The building's fine tracery of structural members, painted white, suggests metaphoric trees, subtly framing and veiling, rather than blocking, panoramic Catskill Mountain vistas.

And on Peru's arid coastal desert, Barclay & Crousse devise a language of concrete, stone, glass—and water. In the firm's three houses at Cañete, desert-toned concrete mimics the parched dunes, while a glass swimming pool, cantilevered over a walkway and view corridor, contrasts with the terrain, echoing sky and sea. Vividly colored exterior walls, some in saturated pimento red, enrich the sensory dialogue.

Whether by camouflage, contrast, or any variation in between, the projects in this collection engage materials to intensify the sense of place. We offer you a feast of houses, as varied as their venues and surrounding landscapes. ■

1. Barclay & Crousse
2. Thomas Phifer
3. Mack Scogin Merrill Elam
4. Tadao Ando
5. Marcio Kogan
6. Carlos Jiménez
7. Georg Driendl

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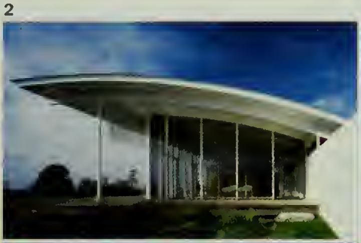

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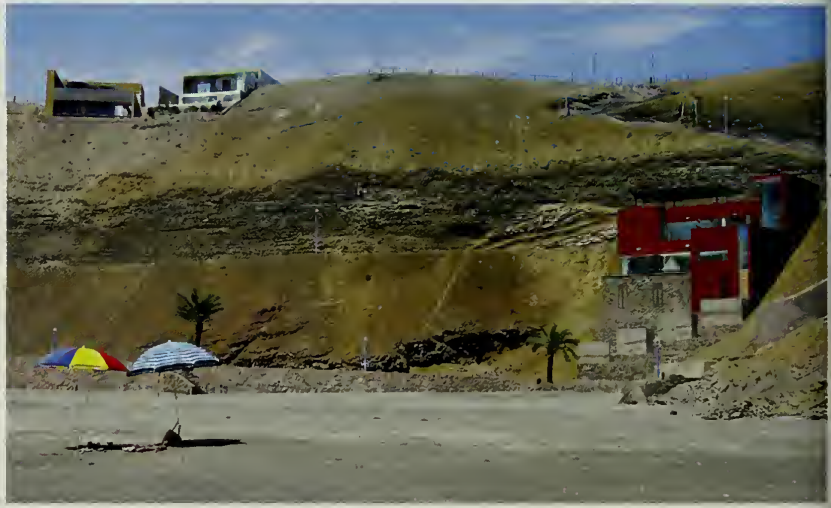
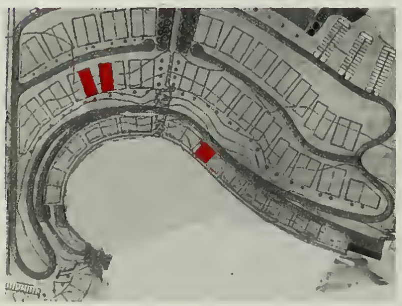
Barclay & Crousse speaks to the arid landscape of coastal Peru with three houses—**CASA EQUIS**, **CASA M**, and **CASA B**—carved into a steep hillside

By Raul A. Barreneche



Peru boasts one of the most arid landscapes on earth: the Atacama Desert, stretching from the Andes to the Pacific and south into Chile. Hardly the lyrical desert of Georgia O'Keeffe and Jack Kerouac, this brutal terrain rolls on for hundreds of miles without any gnarled sagebrush or stout cacti to break up the monotony of sculpted dunes and barren mountains. Inhospitable as they may seem, the desert beaches south of Lima fill with day-trippers and the well-heeled Limeños who summer in gated coastal communities.

Near the town of Cañete, about 85 miles south of Lima, Peruvian businessman Edward Barclay developed one such high-end enclave: La Escondida. The horseshoe-shaped tract comprises 70 oceanfront lots, terraced on three levels along a precipitously steep sandy cliff cradling a secluded beach. The developer hired his daughter, Sandra Barclay, and her husband, Jean Pierre Crousse, partners in Paris-based Barclay & Crousse Architecture, to design a prototypical house here, with the aim of persuading homeowners to build Modernist structures instead of the area's typical whitewashed villas. Barclay & Crousse eventually designed three houses at La Escondida, expanding on the ideas of the original scheme.



The architects, who were raised and educated in Peru and have practiced in Paris since 1990, thought all three houses should first address the desert's scale and emptiness, a condition they say most of the surrounding architecture negates. "People build as if this were Miami," observes Crousse. "The desert's an absolute void. The question for us became how to domesticate and live with it, existentially speaking, without destroying it." Barclay & Crousse turned to the play of abstract volumes as a basis for the design. "It's really the best way to deal with the desert, which is itself abstract," affirms Crousse. Their abstraction took cues from such sources as indigenous Peruvian textiles and the nearby adobe and stone ruins of pre-Incan Pachacamac, dating from 200 B.C.

The architects also looked to *ranchos*, Neoclassical seaside summer homes outside Lima built during the late 19th and early 20th centuries (though largely forsaken after a devastating 1940s earthquake). The boxy, brightly painted *ranchos* filled out their urban lots with shallow entry courts and internal peristyles, opening the interiors to the dry, mild coastal climate. Barclay & Crousse drew on the *ranchos'* spatial organization—without the symmetry and formality—as well as an Inca temple addition at Pachacamac. As a result, the team excavated the entire 3D volumes of the houses' hillside sites, instead of perching objects on the sandy cliffs.

The construction vocabulary of these buildings appears resolutely modest. To minimize costs and ease site supervision from Paris, the architects stuck to basic, locally produced materials, from doors and windows to ceramic tiles and bathroom fixtures. All three houses feature concrete painted in muted desert tones. "A lot of builders here favor all white, as in Greece. For us, white houses pollute such a fragile landscape," explains Barclay. "We prefer colors that make the architecture look like it was always here."

The couple designed Casa Equis, the last of the three houses, as a sequence of open-air spaces, slowly revealing views of the rocky cliffs and cool Pacific. Every vista appears framed—whether by thick planes of concrete or the unexpected cantilever of a glass-enclosed pool over the main stair. "The views are nice, but the house makes them even better," suggests

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Project: *Casa Equis, Casa M, and Casa B, Cañete, Peru*

Architects: *Barclay & Crousse Architecture—Sandra Barclay, Jean Pierre Crousse, partners in charge*

Associate architect: *Edward Barclay, site supervision*

Structural engineers: *Luis Flores (Casa Equis and Casa M); Carlos Casabone (Casa B)*

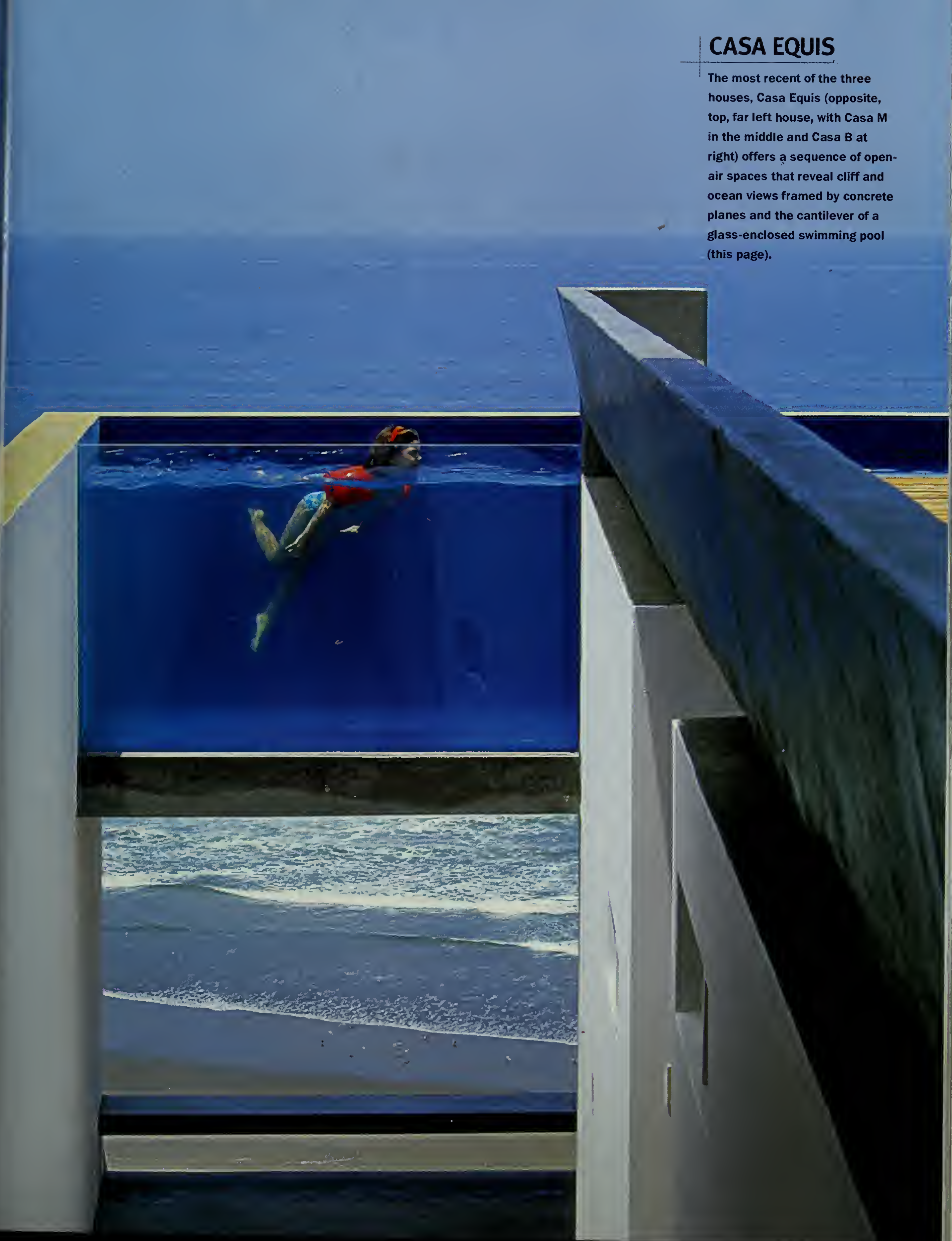
Lighting: *Barclay Consultores*

General contractor: *Edward Barclay*

Raul A. Barreneche is a contributing editor to RECORD.

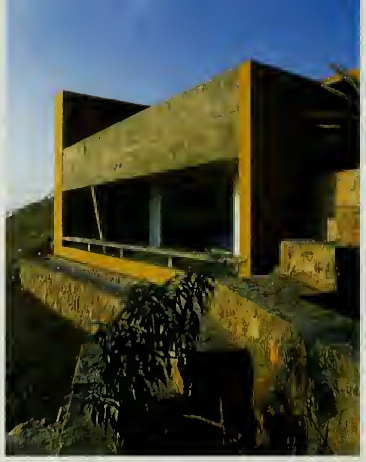
CASA EQUIS

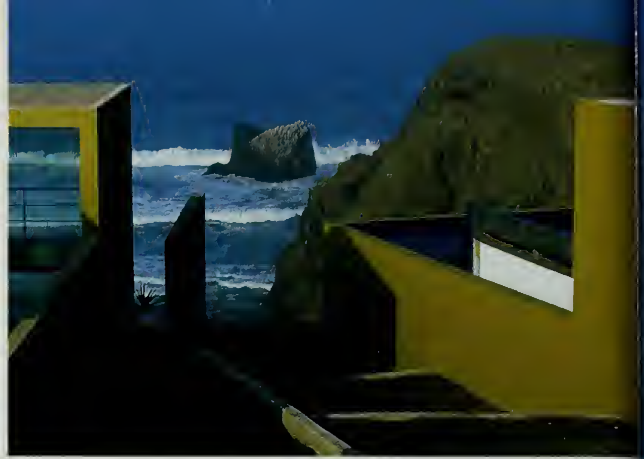
The most recent of the three houses, Casa Equis (opposite, top, far left house, with Casa M in the middle and Casa B at right) offers a sequence of open-air spaces that reveal cliff and ocean views framed by concrete planes and the cantilever of a glass-enclosed swimming pool (this page).

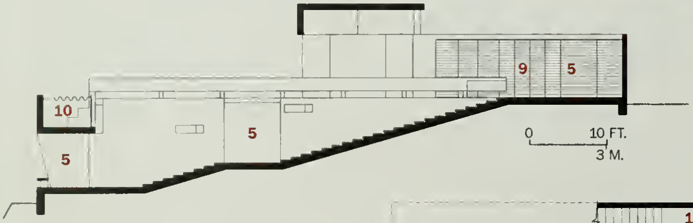


CASA EQUIS

Desert-toned concrete plays against the arid landscape (near right). The geometrically complex view corridor between Casa Equis and Casa M points down toward the sea (far right). In this warm, dry climate, the architects blended indoors with out—as in the living room (below), which flows into an exterior deck. In place of windows, the house has sliding glass panels, opening up large expanses of wall.

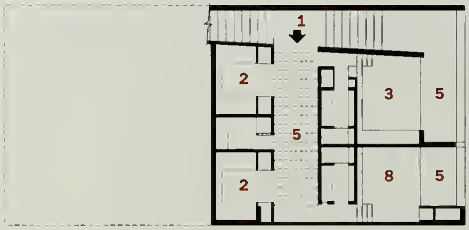




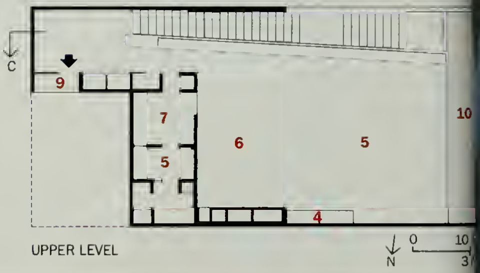


SECTION C-C

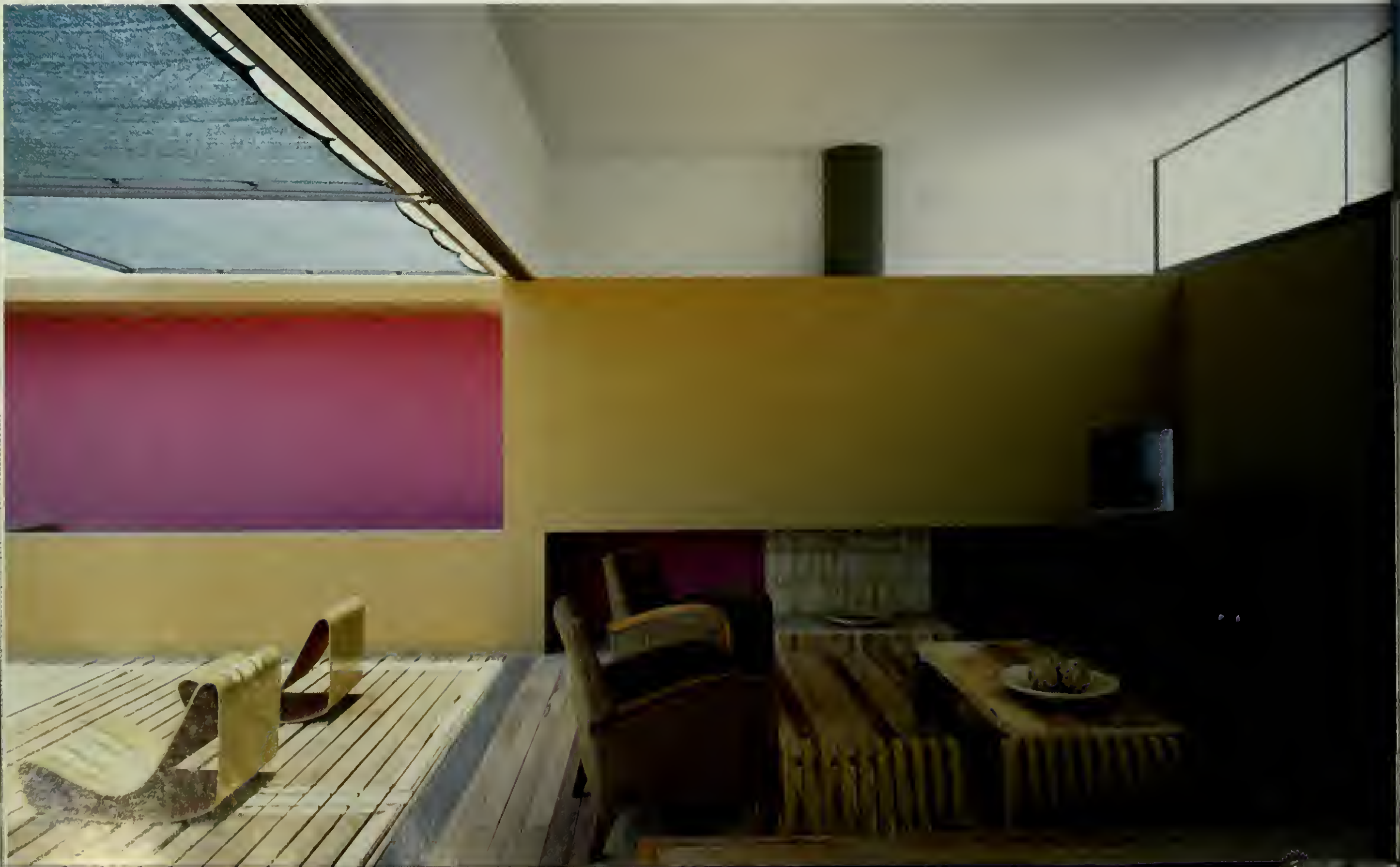
1. *Entry from beach*
2. *Children's room*
3. *Master bedroom*
4. *Open to below*
5. *Terrace*
6. *Living/dining*
7. *Kitchen*
8. *Guest room*
9. *Entry from road*
10. *Swimming pool*

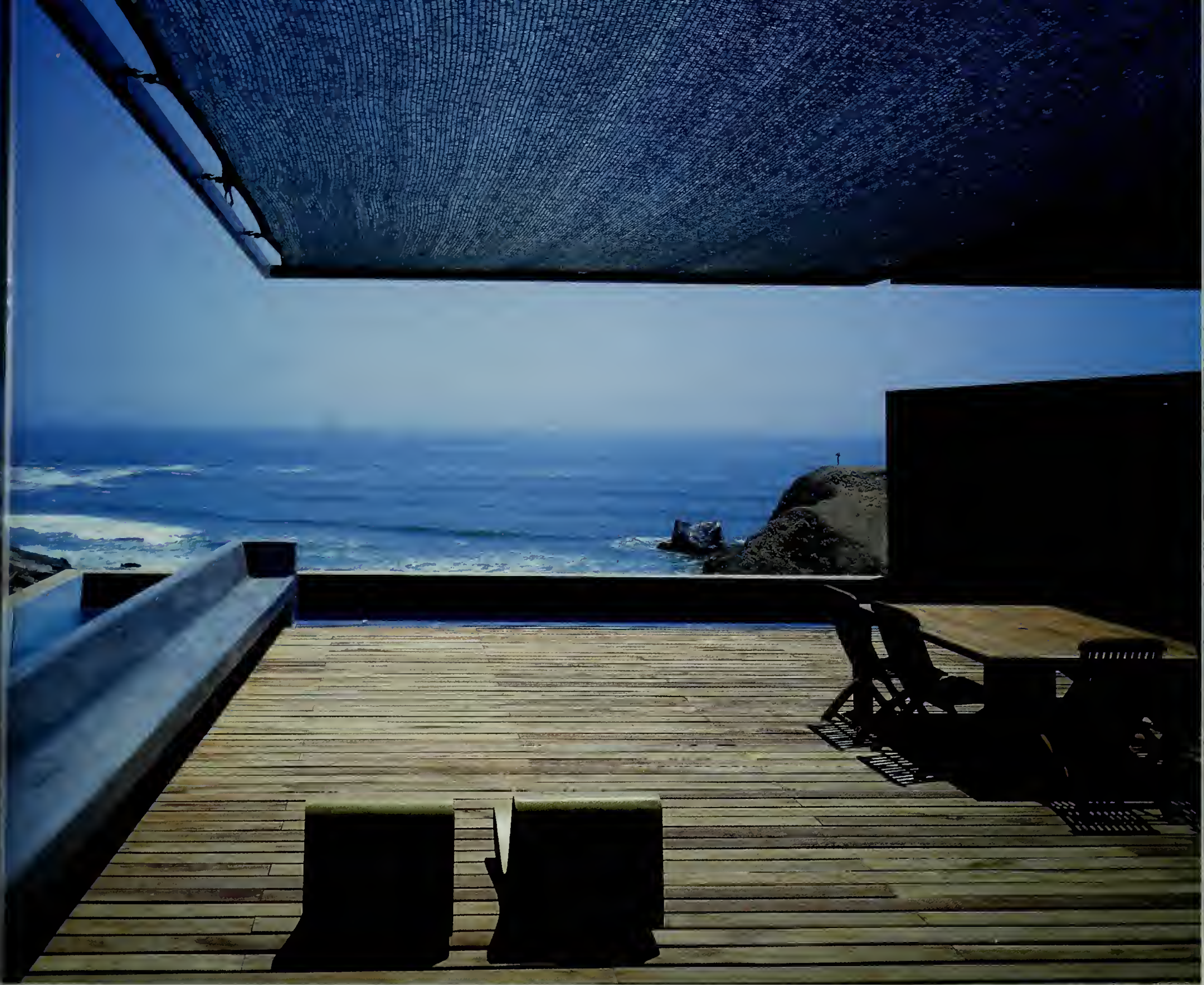


LOWER LEVEL



UPPER LEVEL

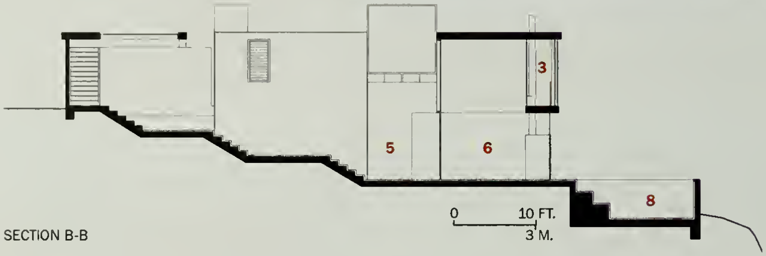




Beneath a sunscreen, the deck extends like an outdoor living room to the edge of the swimming pool (above). The architects play the vibrant, transparent blue volume of the pool against the sky and sea (right). The vertical circulation—a straight stair descending toward the water—runs alongside the house. Following the sloping topography, it ascends from the private sleeping area, up past the more open public zone, to the parking level with access to the road (far right).

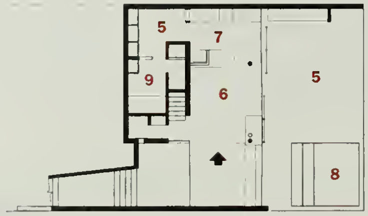
CASA M

Separated from Casa Equis by a narrow yard, Casa M (right) inverts its neighbor's sectional organization with glassy, public spaces at its base and darker private areas at the top. Before reaching the entrance to the house, you step down through a walled court to the lower level, where views open up straight through the sheer volume of the living, dining, and kitchen areas to a terrace, pool, and the ocean (below right and opposite, bottom two). The vivid colors (opposite, top) were inspired by the region's brightly painted *ranchos*.

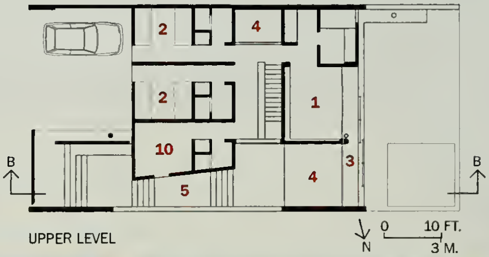


SECTION B-B

1. *Master bedroo*
2. *Children's roo*
3. *Balcony*
4. *Open to below*
5. *Terrace*
6. *Living/dining*
7. *Kitchen*
8. *Swimming pool*
9. *Service bedroo*
10. *Guest room*



LOWER LEVEL



UPPER LEVEL

Crousse. Rain doesn't exist here, so the architects eliminated divisions between indoors and out, opening circulation to the elements. Shade and seismic stability were the only real exigencies.

Perched high above the sea, the 1,800-square-foot Casa Equis has frameless sliding glass doors in place of windows, spatially connecting inside and out—as in the living/dining area, which flows onto a terrace, dubbed the "artificial beach" by the architects.

You enter the house on the top floor, which provides for daytime needs: kitchen, living/dining area, terrace, pool, and service quarters. The lower level, reached by a long concrete stair descending beneath the glass pool, feels like a grotto or an ancient temple's inner sanctum, unlike the bright, permeable spaces of the upper level. The lower floor contains two children's bedrooms bermed into the hillside, with a master suite and guest room open to the sea. Gaps between the planks of the terrace above allow sunlight to pierce the open-air vestibule between bedrooms, casting pinstripes of light on the pebble-studded concrete floor.

Separated from Casa Equis by a narrow yard, Casa M inverts its neighbor's sectional organization with glassy, public spaces at its base and darker private areas at the top. Here, you step down through a walled court to the lower level and look straight through the sheer volume of living, dining, and kitchen areas to a terrace, a pool, and the ocean before entering the house. A central stair ascends to three bedrooms fronting the entry court and a master suite overlooking the sea. Barclay & Crousse contrasts the transparent public zones—focusing attention more on views and outdoor space than the architecture—with the private quarters, walled in concrete.

Located at the base of the cliff, Casa B predates the other two projects. The tri-level, 2,100-square-foot house stands as the largest of the three. Rather than sequestering bedrooms on one floor, this place offers a more striated section programmatically, with a public level separating the children's rooms at the bottom from the master suite at the top.

As in the other houses, the architects pulled vertical circulation to one side, framing it with a solid concrete wall. At Casa B, however, the height evokes an open stair tower rather than a quarried path. Compared with the other two, this house reads less as a spatial sequence hewed from a cliff and more as a traditional structure—albeit with a brightly colored, contemporary top—planted at the foot of a 45-degree slope. The shuttered, stone-clad children's wing has the character of an older building expanded over time—reminiscent of the Inca foundations throughout Peru, which support colonial structures erected by Spanish conquerors.

In France, Barclay & Crousse has produced predictably Modernist buildings of glass and steel, including an addition to the André Malraux Museum in Le Havre. At Cañete, the team opted for an unexpected modernity spun from ancient tradition. This architecture offers an abstraction of site and historical precedent, in contrast to the painterly Latin American Minimalism of Barragán and Legorreta. Barclay & Crousse's design approach yields a series of sophisticated shelters tailored to the precarious meeting point between desert and sea. ■

Sources

Glazing: *Vencedor*

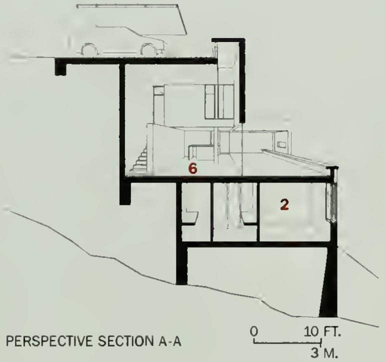
Locksets: *Schlage*

Wall coverings: *Miyasato*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

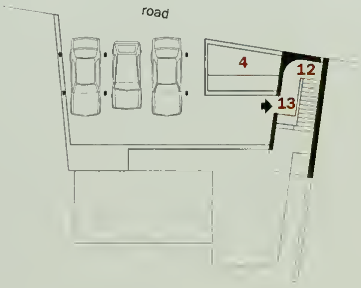
CASA B

Like Casas Equis and M, this earlier, tri-level structure (opposite, top right) places vertical circulation to one side and frames spectacular views (opposite, top left). Here, too, outdoor lounge and dining areas (opposite, bottom left) play integral roles. But compared with the others, this house appears traditionally sited—at the base of the slope, rather than carved high into it. And the shuttered, stone-clad section (opposite, bottom right) suggests an older building expanded over time—like Inca remains beneath Spanish colonial structures.

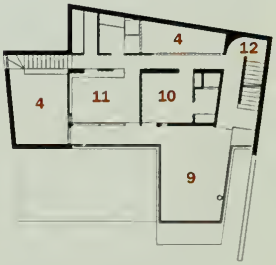


PERSPECTIVE SECTION A-A

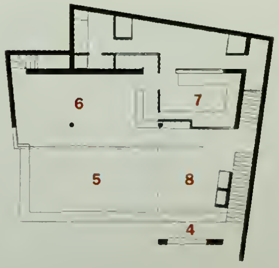
1. *Entry from beach*
2. *Children's room*
3. *TV*
4. *Open to below*
5. *Terrace*
6. *Living/dining*
7. *Kitchen*
8. *"Pergola" summer dining*
9. *Solarium*
10. *Guest room*
11. *Master bedroom*
12. *Outdoor stair*
13. *Entry from road*



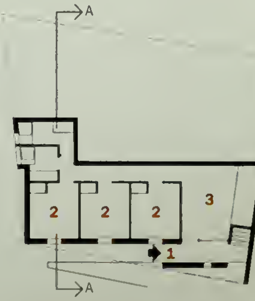
UPPER ENTRY ROAD LEVEL



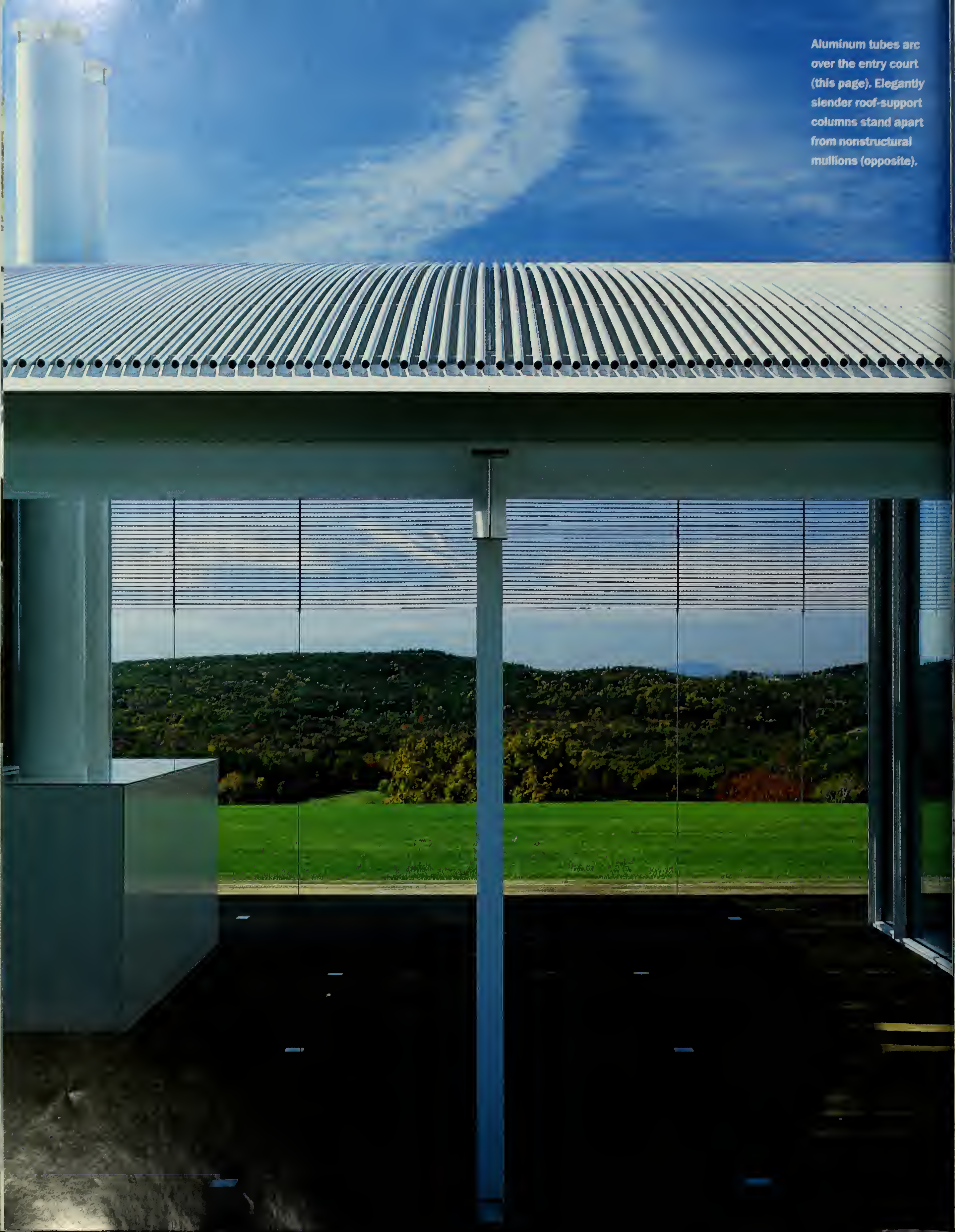
PARENTS LEVEL



COMMUNAL LEVEL



LOWER ENTRY CHILDREN LEVEL



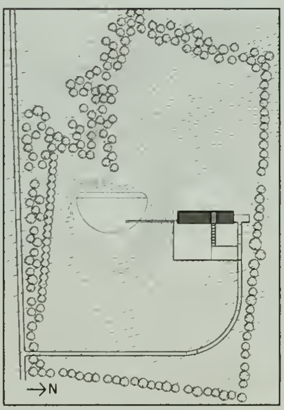
Aluminum tubes arc over the entry court (this page). Elegantly slender roof-support columns stand apart from nonstructural mullions (opposite).

In upstate New York, Thomas **Phifer** creates his finely articulated **SPENCERTOWN HOUSE**, a low-lying earthwork through which the landscape flows

By Fred Bernstein

For Thomas Phifer, AIA, welcoming collaborators isn't about making friends, but about creating a particular kind of architecture. "If you want a building to be really spare," he says, "you can't have people coming to you, once it's been designed, saying, 'Add this' or 'Where can we find room for that?' "

Since leaving Richard Meier's office as a design partner seven years ago, Phifer has established his signature aesthetic: Delicate traceries of articulated structural elements, usually steel painted white, against the sky and landscape. But what he's really established, he maintains, is a signature style of working, involving full collaboration with consultants from the first moment his pen touches paper. His aesthetic and method go together. As he puts it, "You need to have all the disciplines together at the table, working to achieve the same idea."



For the Spencertown House, in New York's Columbia County, the collaborators included Charlottesville landscape designer Julie Bargmann, whose D.I.R.T. Studio is known for reconfiguring vast, postindustrial tracts. Bargmann isn't about to landscape a project that has already been designed. She was involved here from the earliest stages—as were Mahadev Raman, the mechanical engineer who helped make the house energy efficient, and Guy Nordenson, the New York structural engineer currently working on Ground Zero's Freedom Tower. "If a building has already been thought out, and they're just looking for a way to hold it up," Nordenson says, "then we're the wrong people to call."

The Spencertown site, a 14-acre slope with the Catskill Mountains looming in the distance, lay treeless except at its perimeter. To Phifer and Bargmann, a small, mid-slope plateau suggested the house's location, as well as its concept: a low-lying earthwork, extended to take in westward views. In its unadorned simplicity, the building would stand in counterpoint to the region's multigabled McMansions. (Both he and Bargmann compare the design to a Richard Serra sculpture.) Geometrically, as the landscape designer points out, the project would be strong enough to "respond to the scale" of its site.

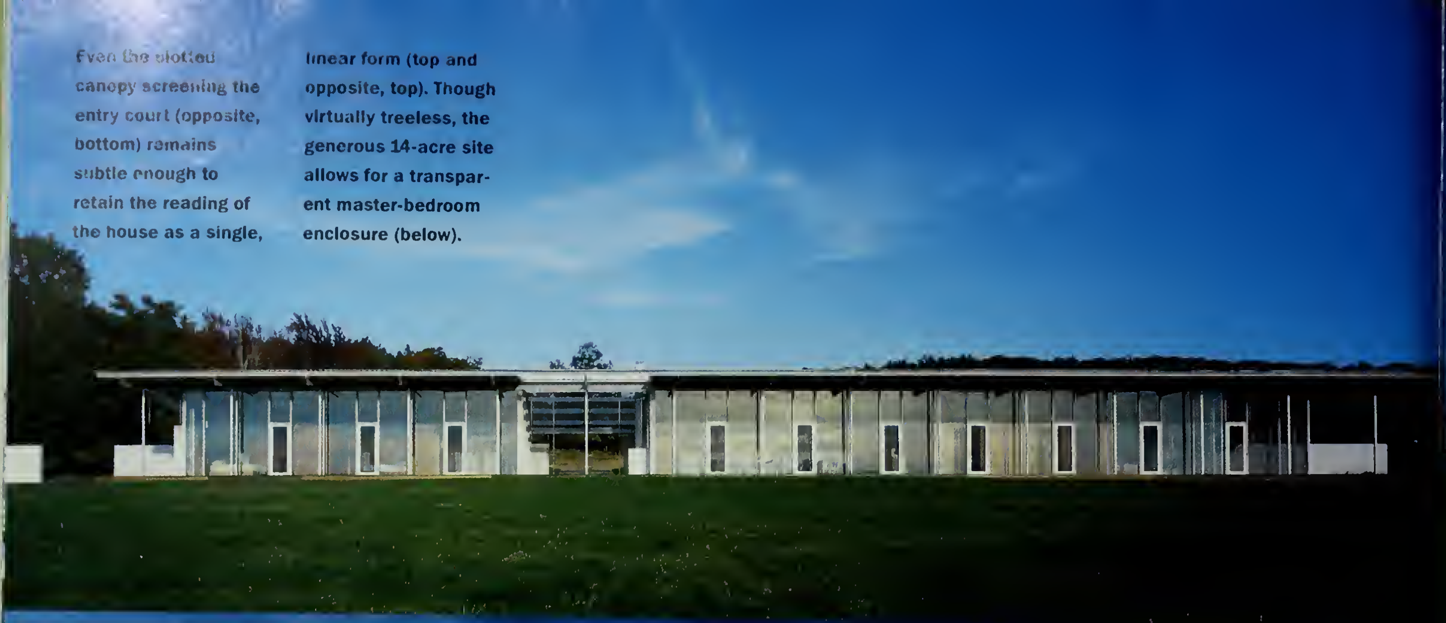
To give a house of merely 3,000 square feet a significant presence in the landscape, Phifer stretched the form into a narrow rectangle, more than 100 feet long and only 28 feet wide. A retaining wall of reinforced concrete, with transom windows facing east, forms the uphill edge, while the downhill side is glass. To support a standing-seam tin roof, Nordenson designed steel beams that curve up and over like the top of an airplane wing.

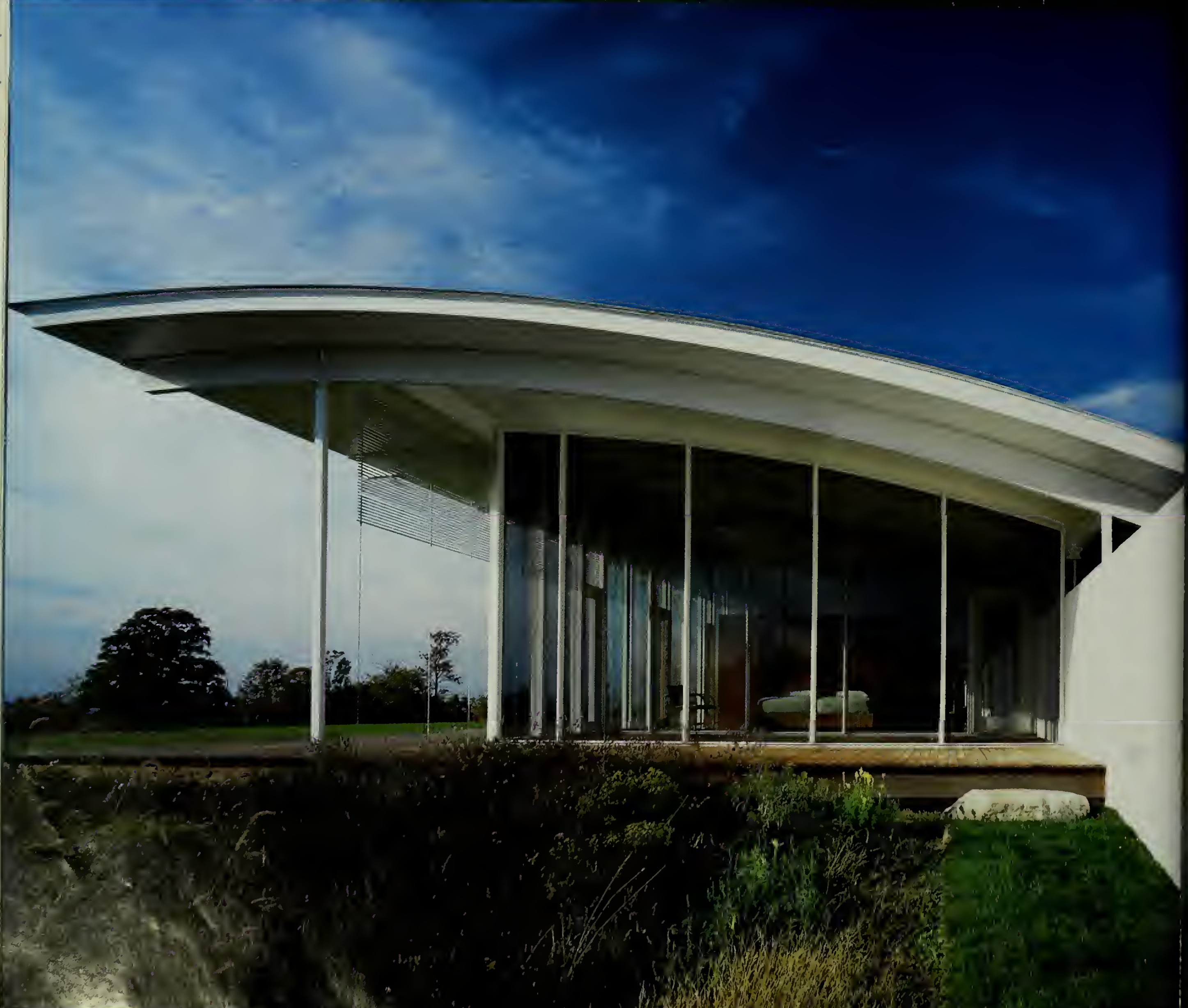
Over a central entry court, spanning between the "main house" and its guest quarters, the roof becomes a series of bowed tubes—set close enough together to maintain the reading of this building as a single linear

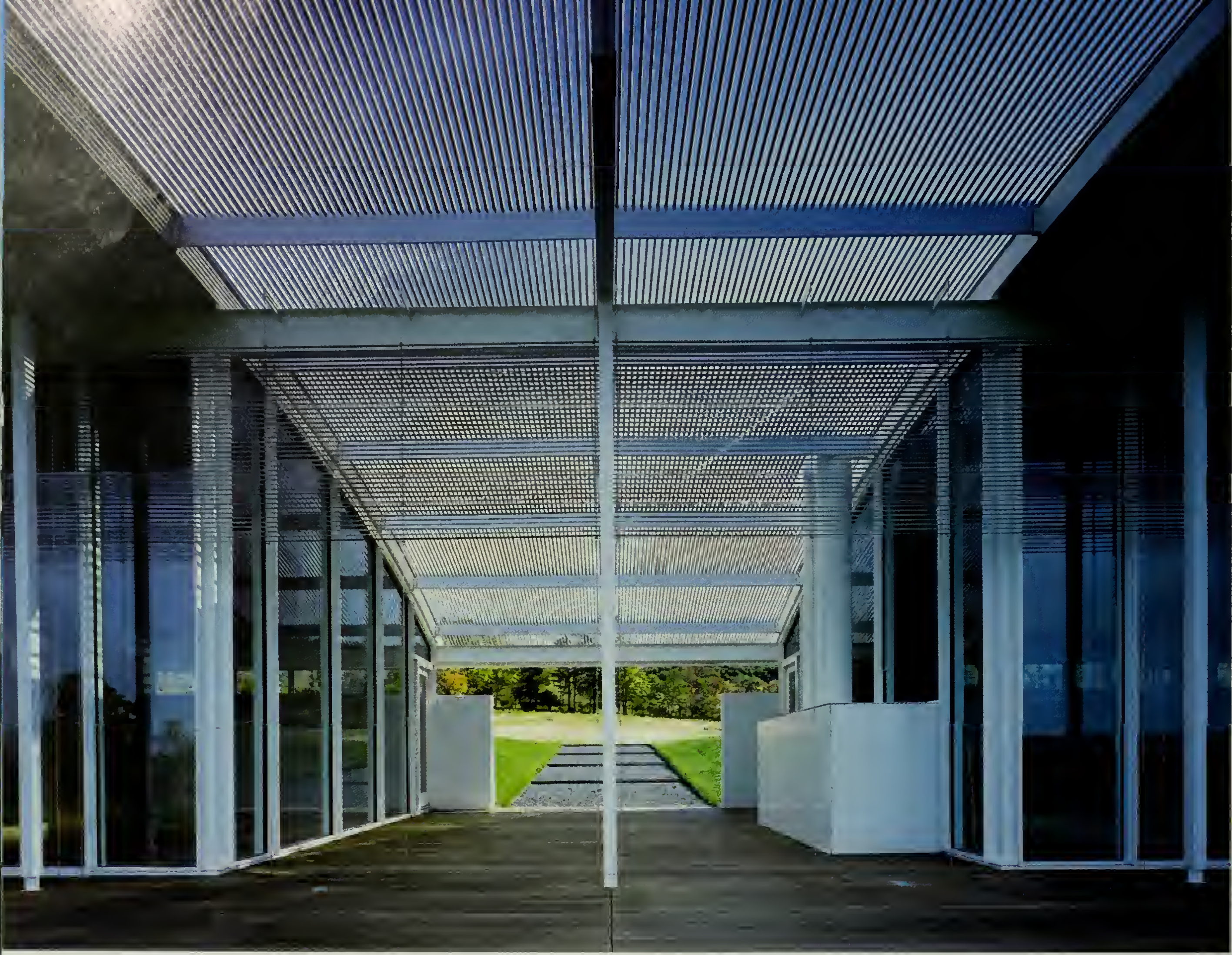
Fred Bernstein, who studied architecture at Princeton University, contributes to Blueprint, World Architecture, *and* The New York Times.

Project: *Spencertown House, N.Y.S.*
Architect: *Thomas Phifer and Partners—Thomas Phifer, AIA, principal; Greg Reaves, Victor Druga, project architects*
Engineers: *Guy Nordenson and Associates (structural); Arup—Mahadev Raman mechanical/environmental/climate control)*
Landscape designer: *D.I.R.T. Studio—Julie Bargmann*
General contractor: *Quadresign—David Haust*

Even the slotted canopy screening the entry court (opposite, bottom) remains subtle enough to retain the reading of the house as a single, linear form (top and opposite, top). Though virtually treeless, the generous 14-acre site allows for a transparent master-bedroom enclosure (below).

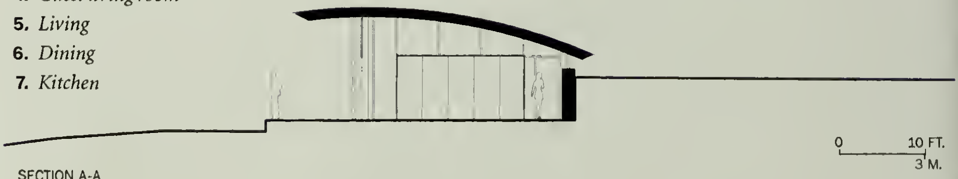




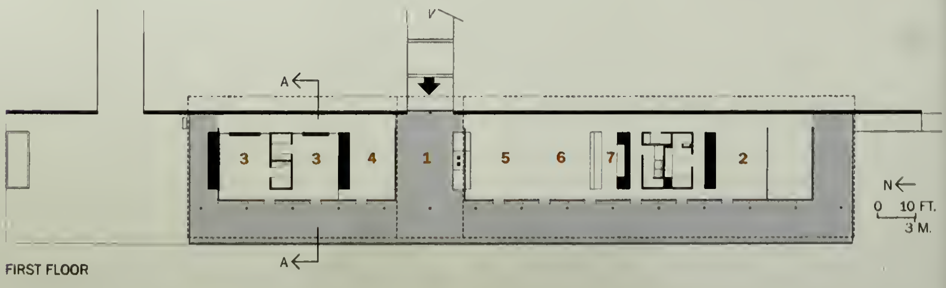


The roof configuration opens up toward the views, while dipping lower on the entry side uphill (above). Spectacular vistas flow through this entire house—as in the extensively glazed living room (opposite).

1. *Entry court*
2. *Master bedroom*
3. *Guest bedroom*
4. *Guest living room*
5. *Living*
6. *Dining*
7. *Kitchen*



SECTION A-A



FIRST FLOOR

volume. Its main section contains living and dining areas, along with the master bedroom, while the guest wing houses two suites.

Phifer executed the interiors with Miesian discipline, never allowing partitions to touch the arcing 12-foot ceiling or the exterior walls, while tucking the bathrooms, closets, and laundry room into windowless cherry wood boxes. In exchange for spatial flow, the owners, a retired couple with grown children, paid a price. With no partitions reaching the ceiling, the bedrooms are anything but soundproof. But what the owners—weekday residents of a modest Westchester County home—gain is a dramatically expansive space, without the lamentable grandiosity of so many new houses.

Keeping the building diagrammatic required extraordinary detailing. Just having to expose the thermostat "almost killed us," recalls project architect Gregory Reaves. To keep the walls pure, the designers hid switches inside an ersatz kitchen drawer. Light fixtures shine up from floor cutouts; and except for smoke detectors, the ceilings remain unencumbered.

Phifer wasn't interested in hiding the structure. The tapered, square steel columns, painted white, supporting the roof could have been disguised as mullions, but instead they stand 2 feet outside the curtain wall. "Each part should be allowed to tell its own story," says the architect. "We didn't want to blur [the reading of] how the house is held up." Along with the mullions and steel rods holding elegant, fixed brises-soleil, the slender columns create a structural filigree. On the treeless site, which Bargmann kept as a clearing, the architecture metaphorically evokes a forest.

But the house stands as more than an exercise in aesthetic refinement. The roof, which swoops down over west-facing windows "like the brim of a baseball cap," according to Phifer, keeps summer sun off the glass until late in the day. And when rays do reach it, the brises-soleil reduce the impact. Operable windows, including the uphill transoms, provide for cross ventilation. By burrowing the house into the earth, which remains at a relatively constant 55 degrees, Phifer says he's made it energy efficient.

In so doing, the architect has advanced environmentalism—and Modernism. "A building can respond to nature without trying to look like nature," he points out. Working in the tradition of Mies and Meier, while staying low to the ground and providing for shade with breezes, Phifer has found a way to make white green. ■

Sources

Doors: *Marvin*

Plumbing: *Kohler (toilets); Franke (sinks); KWC, Speakman (faucets)*

Appliances: *Gaggenau (stove); Amana (refrigerator); Thermador (oven); Asko (dishwasher)*

Countertops: *Corian (bathroom vanity); custom stainless steel (kitchen)*

For more information on this project, go to Projects at **www.architecturalrecord.com.**

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n an unusual scenario, Mack **Scogin** & Merrill **Elam** joins forces with a volume builder for a one-of-a-kind project: the **BAILEY HOUSE STUDIO**

y Sara Hart

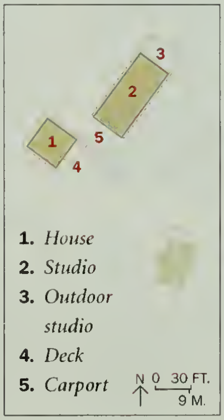
The back story of the Bailey House is as intriguing as it is unlikely. In the beginning, the project seemed to have all the right ingredients—an exceptional site, talented architects, and a client with vision. Radcliffe and Loran Bailey bought 7 acres of heavily wooded, rolling land, which backs up o a nature conservancy but also sits just a few ards off the blacktop winding through a midlle-class neighborhood in suburban Atlanta.

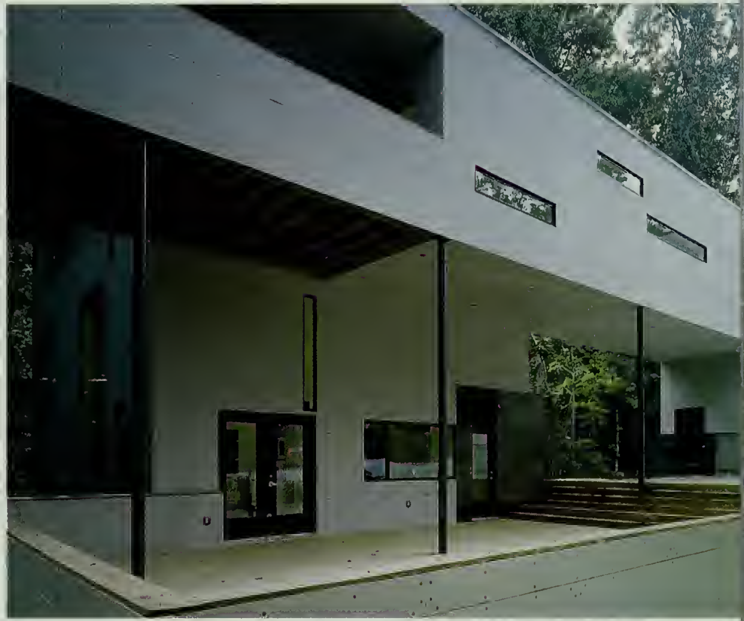
The young couple, parents of two hildren, approached Mack Scogin Merrill lam Architects to design a house with a stulio for Radcliffe, an artist gaining national rominence with his large, colorful paintings hat mingle African-American historical ignettes with his own family photographs. The work appears at once studied and—nspired by the artist's lifelong obsession with azz—improvisational.

The architects' parti proposed a square and a rectangle (a 2,000-square-foot house and 2,000-square-foot studio, respectively) linked by a bridge element (a deck with a 200-square-foot library or family room). The scheme remained straightforward as the architects strove to keep costs down, but bids came in way over the clients' budget. "At that point—a dark moment in any project," explains project architect Brian Bell, "we all realized that if the house and studio were going to get built at all, the Baileys might have to give up program." (In the end, it wasn't necessary.)

Then, the story takes an unconventional turn. Loran Bailey called the Atlanta Housing Authority, a public-housing agency, and requested a list of local builders. This was, as the architects admit, "a suspect proposition, full of risks." On the list, she recognized John Wieland, head of an eponymous company—one of the Southeast's largest private-home builders—and a patron of the arts. He contributes generously to area art institutions, and his extensive collection includes Radcliffe's work. So, it hardly seemed farfetched that the two would know of each other—and not surprising that Wieland would agree to an unusual project for a rising artist.

Two potentially deal-killing stipulations existed, however. First, the contract would be between the owners and Wieland, relieving the architects of fiduciary obligation, but also limiting their control. Second, and most vexing, all building materials, including finishes, would have to come from "supply-fabrication" subsidiaries of John Wieland Homes and Neighborhoods. These companies provide everything from foundations and exterior-cladding options to plumbing fixtures, window treatments, and kitchens.





The Bailey House Studio sits on 7 heavily wooded acres, just minutes from downtown Atlanta.

John Wieland has erected 20,000 homes in his company's 30-year history. Such success requires an economically dependable, albeit rigid, system of building, offering the consumer a catalog of options not unlike those of automobile manufacturers. This approach may seem antithetical to the architect-designed, one-of-a-kind residence, which eschews economies of scale in favor of often expensive, unique materials and meticulous detailing. Certainly, the dangers of rendering the adroit Modernism of Scogin and Elam in clapboard and shutters may have been real, but by the architects' own admission, Wieland's agreement to take on the project proved critical to getting it built.

The contractual agreement had one clear advantage. The architects could keep their fees low because they wouldn't need to issue change orders or detailed construction documents. In the end, Bell, representing

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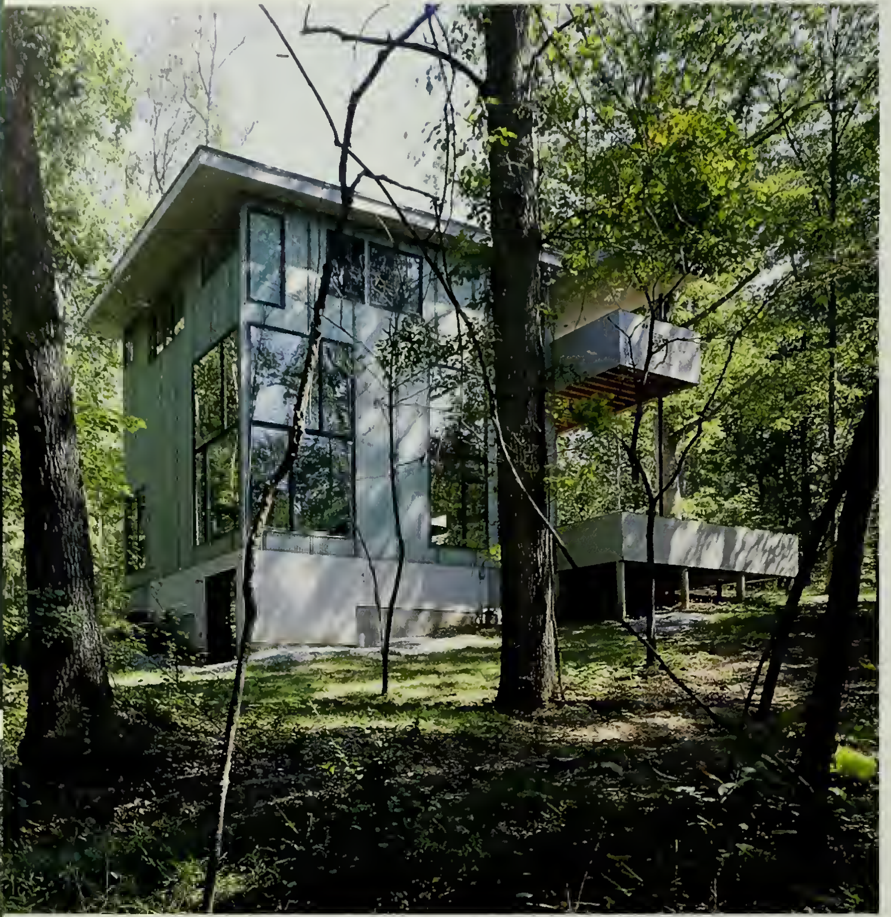
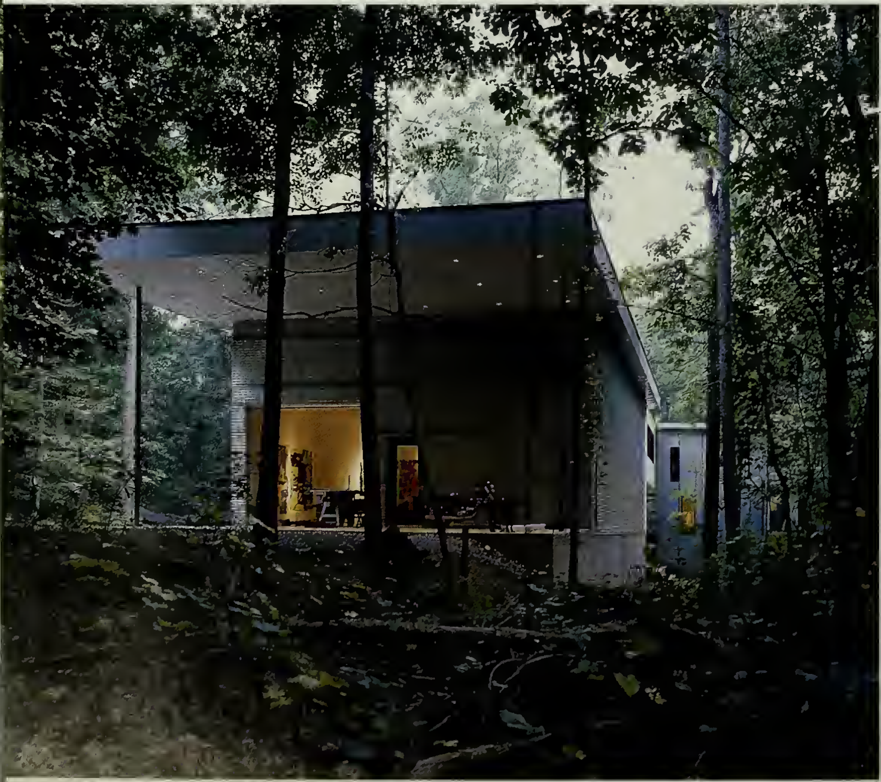
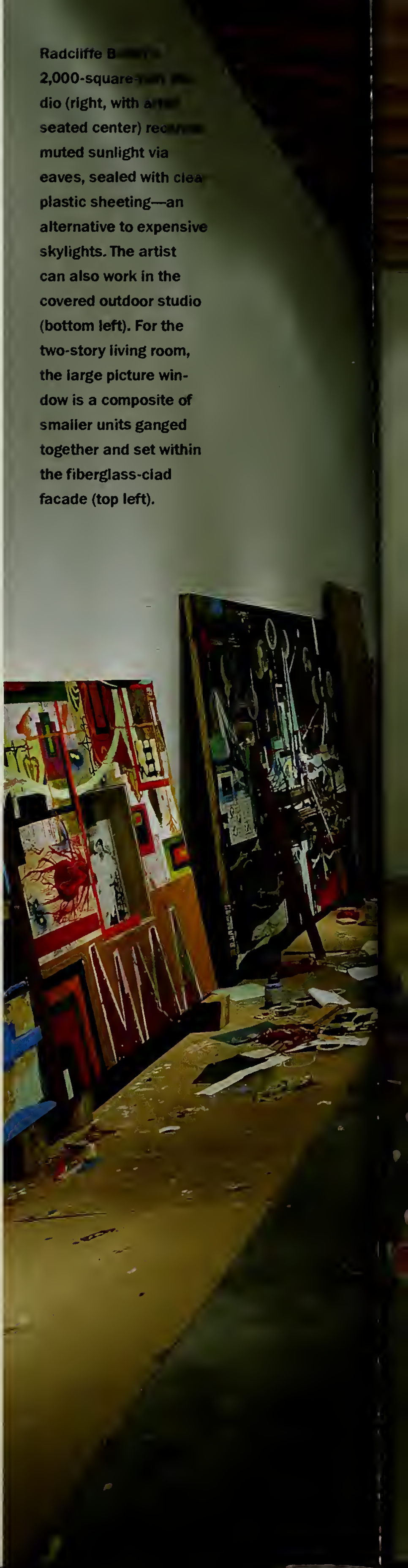
Project: *Bailey House Studio, Atlanta*
Architect: *Mack Scogin Merrill Elam—Merrill Elam, AIA, principal in charge; Mack Scogin, AIA, collaborating principal; Brian Bell, project architect; Barnum Tiller, John Trefry, Denise Dumais, Charlotte Henderson*
Engineer: *Palmer Engineering*
General contractor: *John Wieland Homes and Neighborhoods*

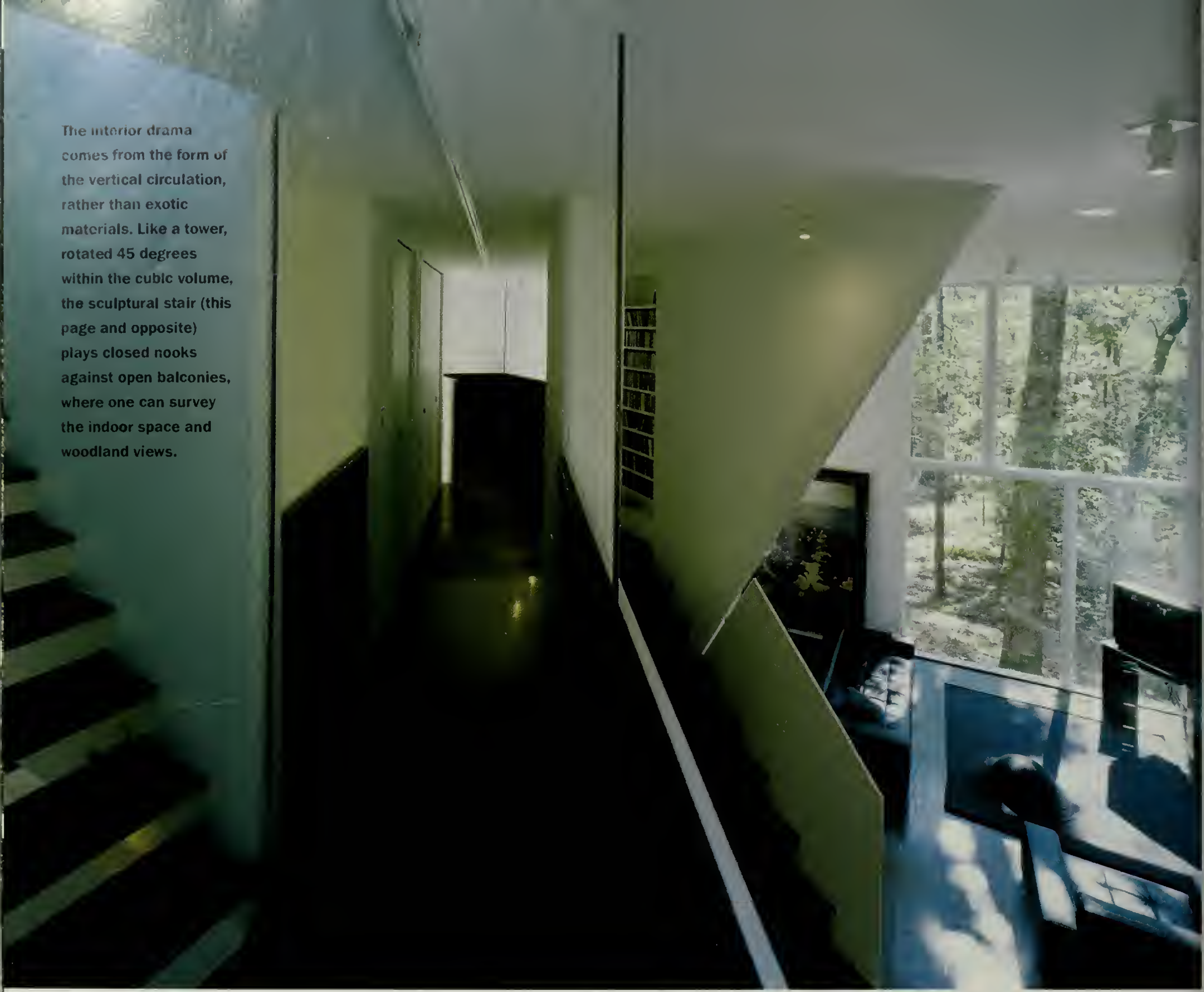






Radcliffe Bailey's 2,000-square-foot studio (right, with artist seated center) receives muted sunlight via eaves, sealed with clear plastic sheeting—an alternative to expensive skylights. The artist can also work in the covered outdoor studio (bottom left). For the two-story living room, the large picture window is a composite of smaller units ganged together and set within the fiberglass-clad facade (top left).

B ATO



The interior drama comes from the form of the vertical circulation, rather than exotic materials. Like a tower, rotated 45 degrees within the cubic volume, the sculptural stair (this page and opposite) plays closed nooks against open balconies, where one can survey the indoor space and woodland views.

Mack Scogin Merrill Elam, and Doug Tolleson, Wieland's builder, negotiated the design and execution verbally and with sketches. "Getting Tolleson's feedback was crucial to keeping costs down and achieving a buildable project within Wieland's framework," recalls Bell. "We had to be flexible, and they had to allow themselves to be stretched."

Scogin and Elam finessed the limitations in several ways. Knowing that Wieland typically clads houses in cementitious boards—wood-grain textured and then painted—the architects took the raw, unprocessed panels and bolted them to most of the exterior walls. Elsewhere, as on the living room elevations, they included translucent, corrugated panels of fiberglass bolted over reflective insulation. Light filtering in shines back out, so under favorable conditions, the facade glows.

Wieland's limited window offerings tend to be small and rectangular. Given the beautiful wooded views, though, the architects wanted large expanses of glass. Bell and Tolleson figured out a way to gang several units together, with the architect negotiating the only variant—a lightweight horizontal structural member.

The studio is a tall rectangular box—all function, few amenities. But the architects inserted a particularly clever detail, where exposed wood trusses extend beyond the exterior walls, forming a typical overhang. They sealed it with clear plastic sheeting, in place of an opaque soffit. Artists need daylight, but with a budget prohibiting such extras as skylights, the determined designers improvised, instead of deleting. Radcliffe now gets that shadowless sunlight preferred for painting—at no extra cost.

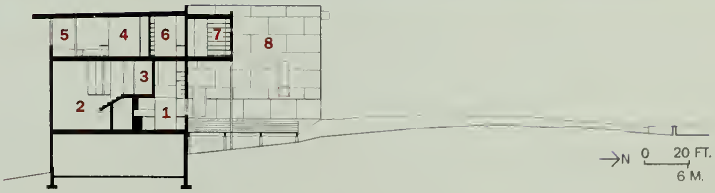
Most mass-production home builders use forgiving techniques, concealed by ornament—so they're unaccustomed to Modernism's tight tolerances. Rather than fight a losing battle against the builder's standards, Scogin and Elam deliberately sought an unfinished, yet consistent, look throughout, and reinforced the strategy with off-the-shelf fixtures and hardware applied inventively. Over time, the Bailey family will fill out the house and studio by improvisation in much the same way that Radcliffe approaches his canvases. Here, the high-design architect and the volume home builder both learned that their cultures needn't be incompatible. ■

Sources

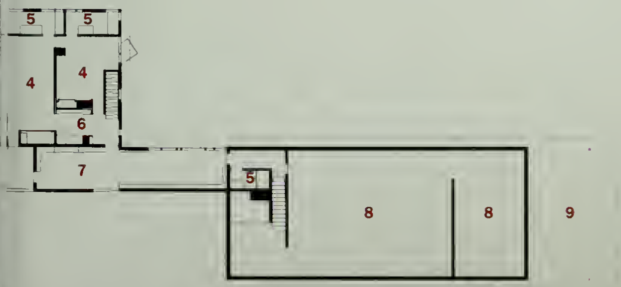
Cementitious panels: *Hardipanel*
Fiberglass: *Resolite*
Windows: *Peachtree*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

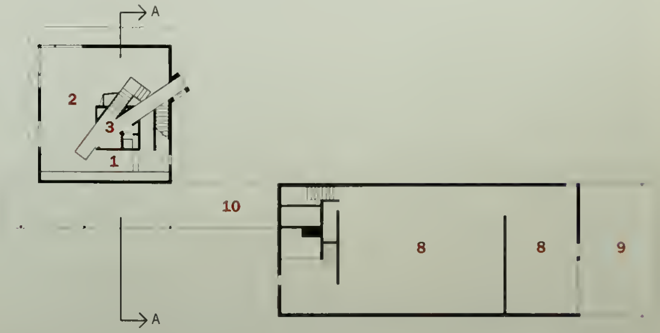
1. *Kitchen*
2. *Living room*
3. *Mezzanine*
4. *Bedroom*
5. *Bathroom*
6. *Office*
7. *Library*
8. *Studio*
9. *Outdoor studio*
10. *Deck*



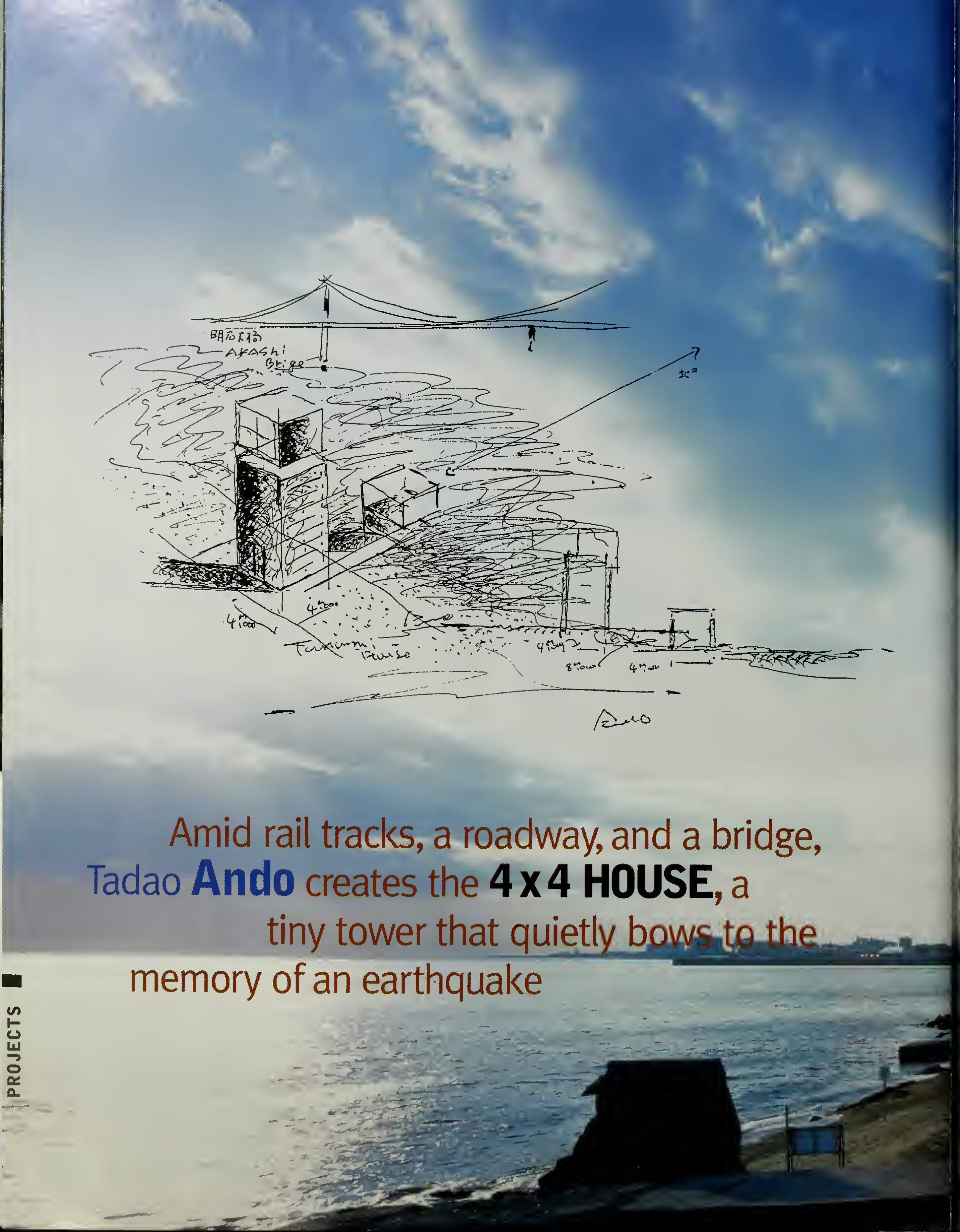
SECTION A-A



EVEL

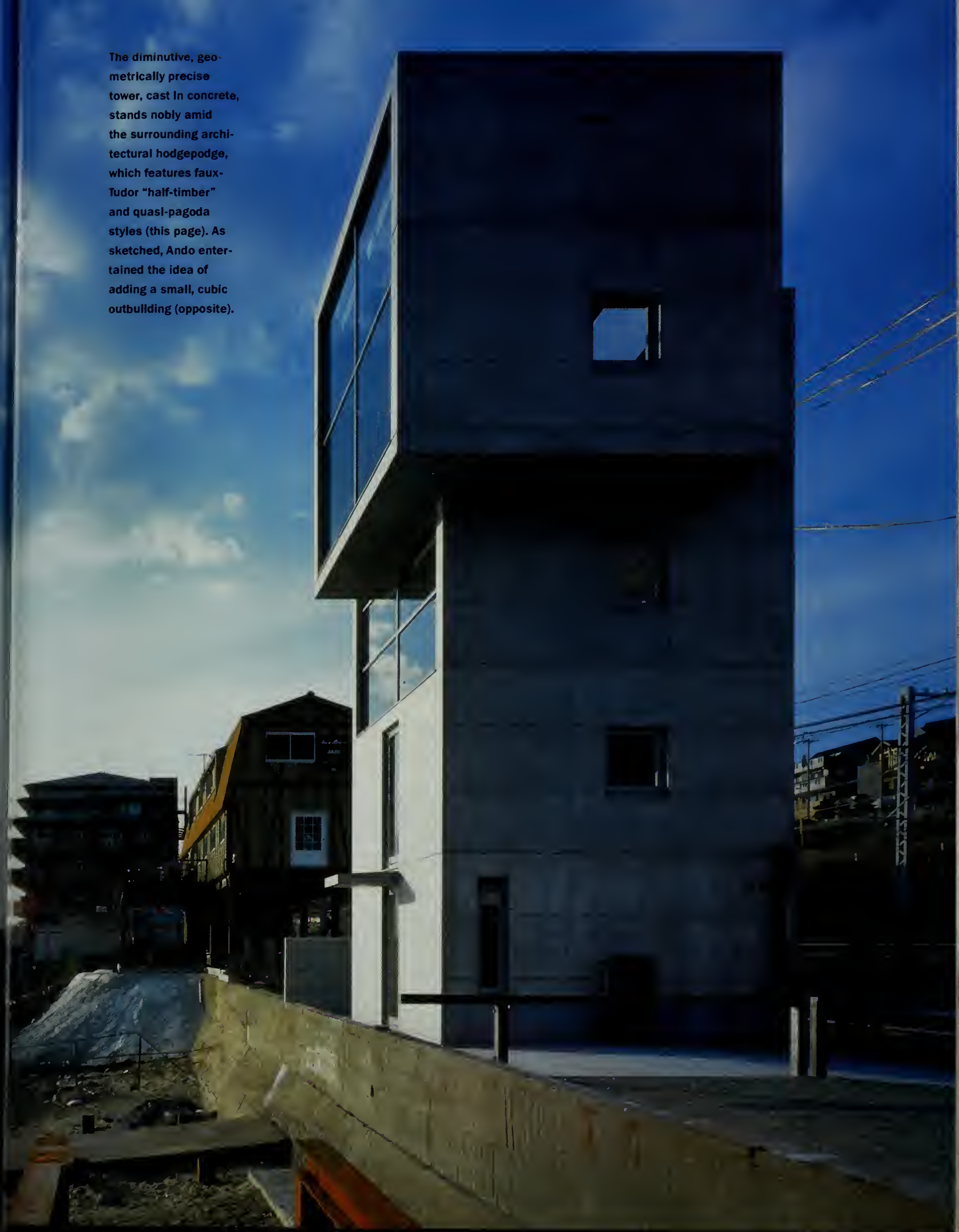


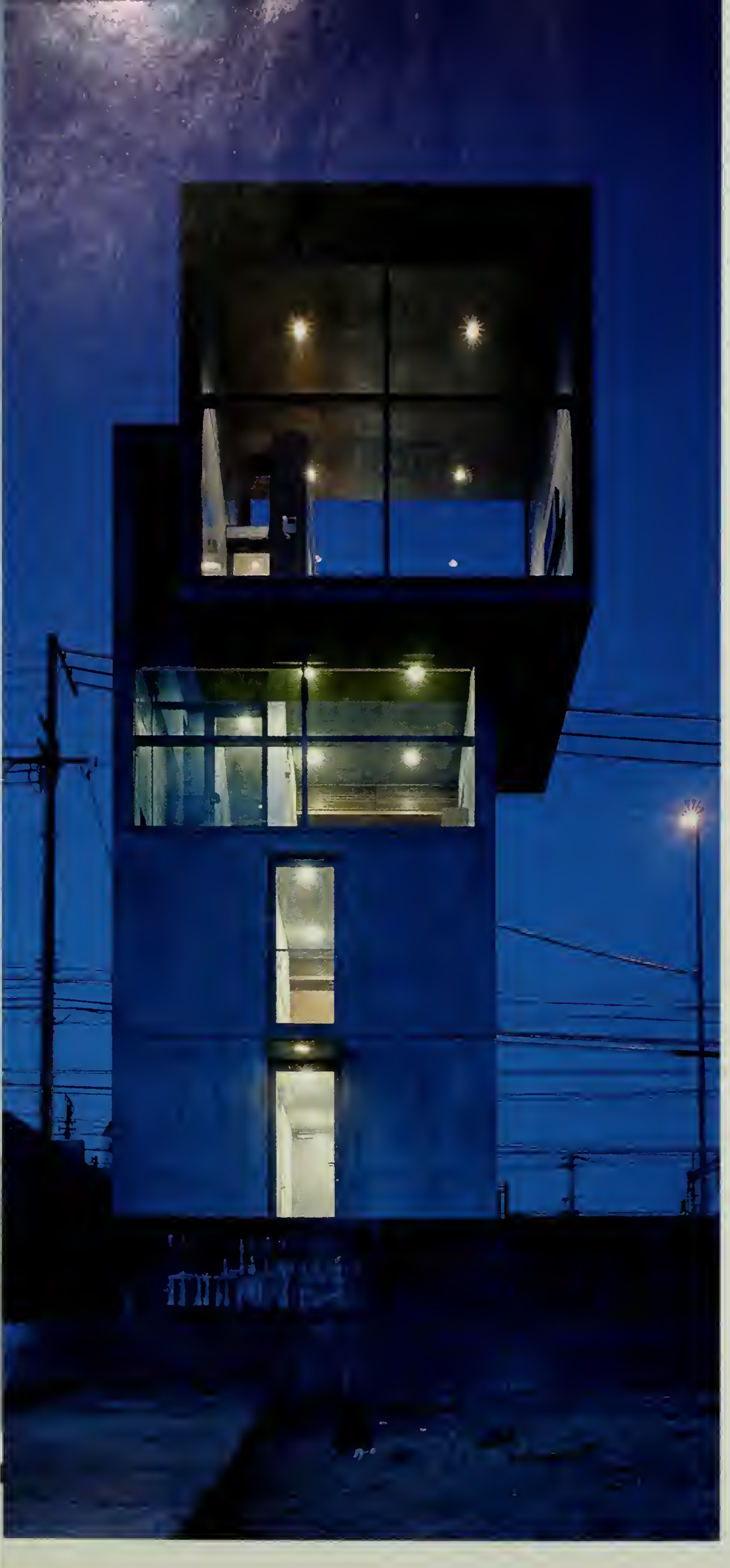
MEZZANINE/STUDIO LEVEL

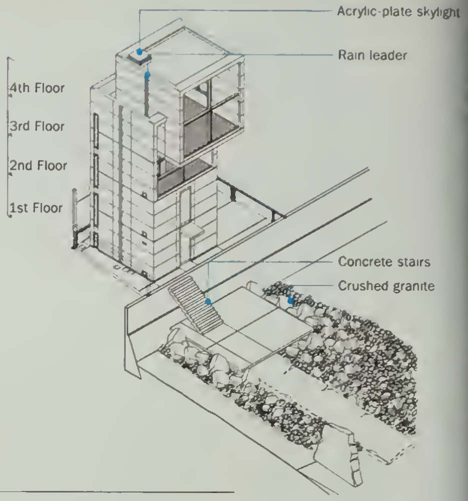


Amid rail tracks, a roadway, and a bridge, Tadao **Ando** creates the **4 x 4 HOUSE**, a tiny tower that quietly bows to the memory of an earthquake

The diminutive, geometrically precise tower, cast in concrete, stands nobly amid the surrounding architectural hodgepodge, which features faux-Tudor "half-timber" and quasi-pagoda styles (this page). As sketched, Ando entertained the idea of adding a small, cubic outbuilding (opposite).







By Naomi Pollock

Imagine if *GQ* offered its readers a chance to have a dream house designed by Frank Gehry. In effect, that's what Japan's *Brutus* magazine did when it hooked up world-famous architect Tadao Ando with a 31-year-old construction company executive, a bachelor from Hyogo Prefecture. This pairing came about after the magazine, a trend-setting monthly geared toward men, invited readers to choose one of 10 architects, including Toyo Ito and Shin Takamatsu, and submit a brief description of their ideal home on a tear-out postcard. The one catch: Valid submissions had to be backed by an actual budget with land to build on. From its 120,000 readers, *Brutus* received 200 responses. Playing the good matchmaker, the magazine routed the postcards to the respective architects and then waited to see what would happen.

To no one's surprise, Ando received 80 requests. The construction executive's site immediately struck a chord with the architect, who lives and works in nearby Osaka. Set along a commercial strip on the outskirts of Kobe, where sandy beach meets the Seto Inland Sea, the 700-square-foot property faces a two-lane artery and train tracks on one side and, on the other, the Akashi Strait Bridge, Japan's longest suspension span. But what riveted Ando's attention was the view: directly across to Awaji Island, the epicenter of the 1995 Great Hanshin Earthquake. The architect knew the island well as home to his Yumeibutai and Water Temple, but firsthand impressions of the earthquake's massive destruction remain seared in his memory.

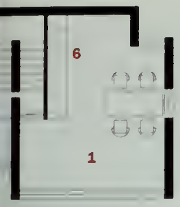
In personal remembrance of the devastation, Ando proposed a four-story concrete tower—pointed toward the island. "It was so simple and looked completely different from what I thought Ando's work would be like," recalls the client. To convey his vision of the house, the construction executive made a model of a low-slung building over piloti parking, and brought the maquette to a meeting with Ando. But the architect had in mind an entirely different strategy: 4-by-4-meter (13-by-13-foot) rooms, stacked one atop the other like blocks. Mandatory setbacks, height restrictions, and off-street-parking needs determined the building's footprint, leaving a small buffer zone between the house and its neighbors.

Modest in his programmatic requests, the client had hoped for a flexible space that might one day accommodate a family and other life changes. "In Japan, the life cycle of houses is very short," he points out, "and I wanted a place I could stay in until I die." Though the house's stairs seem less than user-friendly for the very young or old, the study, bedroom, and living areas remain intentionally free of fixed elements, ready to accommodate future functional changes—a very realistic scenario, given the lack of emphasis on personal space in Japanese culture.

The tiny tower rises (above a basement storage room) from an

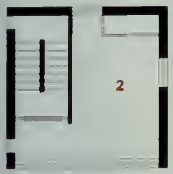
The architect plays his tower against the form and scale of the Akashi Strait Bridge (opposite, bottom). From inside the building's crowning cubic room (opposite, top), expansive views of bridge, sky, and city appear at once—in multiple directions. At night, when lit from within, the house reads as glowing volumes (above).

Naomi Pollock is RECORD*'s Tokyo-based correspondent.*

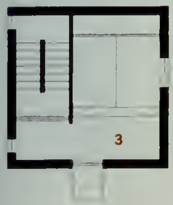


FOURTH FLOOR

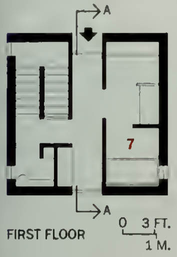
1. *Living/dining*
2. *Study*
3. *Bedroom*
4. *Entrance*
5. *Storage*
6. *Kitchen*
7. *Bath*



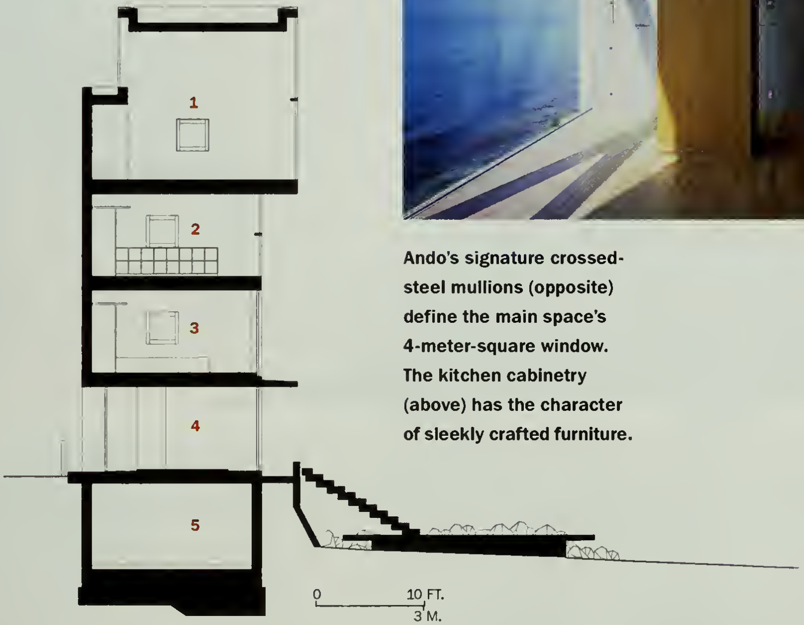
THIRD FLOOR



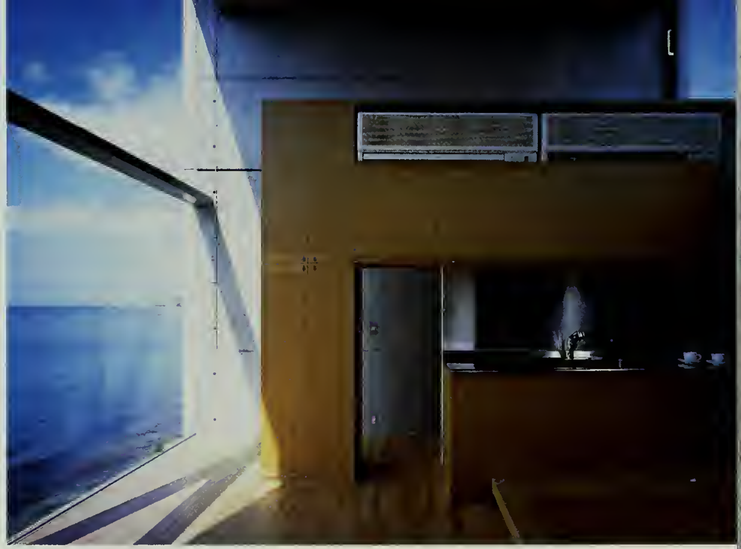
SECOND FLOOR



FIRST FLOOR



SECTION A-A



Ando's signature crossed-steel mullions (opposite) define the main space's 4-meter-square window. The kitchen cabinetry (above) has the character of sleekly crafted furniture.

entry-level foyer to the bedroom on the second floor and a study on the third. On the fourth level, a combined kitchen, living, and dining area forms the house's focal point: a 4-meter cube with a glazed south elevation jutting out toward the water like a giant (albeit square) telescope lens capturing the views. Although stairs take a bite out of each floor, the decision to slide the crowning cube to one side gained a bit of usable space.

While the top room does not exactly evoke a Western ideal of comfort, its volume more than compensates for the small floor area. Taking full advantage of the height, the south-facing floor-to-ceiling window offers panoramic vistas. Opposite it, a large clerestory frames a patch of sky, but edits out the nearby grilled-octopus stand, scuba shop, and busy artery.

Ando enclosed the building in concrete, his favored material, and for privacy, kept windows, especially on the land sides, to a minimum. Even the front facade, recalling his 1976 Sumiyoshi Row House, presents a wall of concrete with just one small window and a door. Yet the architect could do little to muffle traffic and train noise or mollify the site's harsh natural conditions. "When it's really windy, I'm scared the house will topple over or the glass will blow out," frets the client. Fortunately, his concerns remain more imagined than actual, as Ando has securely anchored the reinforced-concrete shell below grade, strengthening its resistance to lateral forces. Besides coating the cube's thick glass in a shatterproof film, he braced the glazing with his signature crossed-steel mullions.

Not to say the wind and sea don't take a toll. In addition to a waterproof sealant on the concrete's outer surface, Ando provided supplemental piping to bring water up to the roof, so that the client (after ascending a ladder through a small kitchen hatch) can hose off the salt-water and seaweed that spray up with rough waves.

On calm days, though, the beach is the place to be. A conduit from street to sand, the foyer leads directly to stairs descending to a concrete platform that hovers above the shore: an ideal spot for barbecues and sunbathing. Ando entertained the idea of building an addition on the beach, but it's unlikely to come to fruition unless the building code changes. Though the property stretches out to the water, legal restrictions prevent the construction of anything but public amenities beyond the existing seawall. But apart from questions of expansion, Ando considers the house a complete entity as built.

An unusual site—on a narrow, chaotic strip of land so near the epicenter—with an owner willing to follow his architect's lead, enabled Ando to turn a magazine survey into a radical house, quietly memorializing the earthquake. It's a wonder that a designer of palatial homes for the rich and famous would participate in a media gimmick (of which the financial arrangements remain confidential). But Ando explains, "I wanted to know what the average person thinks about houses." If the owner of 4 x 4 represents the norm, then modest architectural clients in Japan may be ready to take big risks—once given the chance. ■

Project: *4 x 4 House, Kobe, Japan*
Architect: *Tadao Ando Architect & Associates—Tadao Ando, principal; Masataka Yano, Tatsuhito Ono*
Engineer: *Ascoral Engineering—Naoto Kashimoto (structural); Shinmei-jyusetu—Takao Mizogushi (mechanical); Kurozumi(electrical)*

For more information on this project, go to Projects at **www.architecturalrecord.com.**

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Within a simple box, Marcio **Kogan** unfurls a complex architecture at the **DU PLESSIS HOUSE**, set between Brazil's sandy coast and its lush rain forest

By Sarah Amelar

Although Marcio Kogan would describe himself foremost as an architect, the Brazilian practitioner has also designed stage sets and completed as many films (if you count short ones) as he has houses. During an architectural career now spanning 25 years, he's made more than a dozen brief films and one full-length feature—in an absurdist, Jacques Tâti-esque mode with a Brazilian twist. Currently he's planning a movie about the city of São Paulo, where he lives and works. So, not surprisingly, his recently built Du Plessis House, about 150 miles southwest of Rio de Janeiro, reveals subtle theatrical and even cinematic qualities.

Here, in a wealthy, gated leisure community (with its own golf course and helipad), set between sandy coastal coves and the steep, lush hills of the Mata Atlantico rain forest, Kogan has gently inverted expectations, taking evident pleasure in the play of contradictions. Though his Du Plessis House stands only a few yards from its encroaching neighbors to either side, it manages to create a world apart, both indoors and out, all contained within a literal white box—a relatively neutral theater for the mise-en-scène of its inner realm.

From the outside, this simple, rectilinear volume appears simultaneously still and dynamic. Though its precise form remains grounded and calm, its visually charged cladding evokes motion through thin, stacked, blade-cut slabs of local mineira stone. Small irregularities in the masonry's strong horizontal rhythms, and color variations streaking through it, produce an optical effect—a slight kinetic blur, as if this surface were filmed in a long panning shot.

And though the house's exterior masquerades as a work of pure Modernism, it actually harbors traditional architectural elements within its outer walls. Kogan's earlier work, including the glassy, white Gamma Issa House of 2002, established him as a nontraditionalist. But here, he responded in an unorthodox way to the community's zoning requirement for pitched, ceramic-tile roofs. Overturning straightforward logic, he placed the required elements where neighbors and passersby could barely see them, if at all. His rectangular, stone-clad—apparently flat-roofed—"white box" turns out to be a partially roofless shell, entered sideways into a courtyard. Once inside this outdoor room, a narrow volume off to one side (containing three bedrooms with baths) comes into view—capped with, yes, the obligatory canted, terra-cotta roof. It seems extraordinary that a building-review board would have accepted such an inside-out interpretation of its guidelines, but the resulting structure—so pure, quiet, and completely unlike any of its neighbors—appears remarkably compatible with the faux haciendas and other nouveau-riche villas around it.

A stone-clad, white box (opposite, top), the house's exterior shell frames views into its courtyard (opposite, bottom) and out onto a golf course (above).

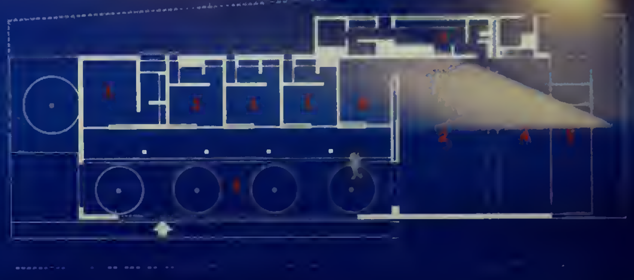
Just one step into the forecourt, and it's clear you've entered another realm. Here, a ground plane of pale concrete, studded with small, smooth river stones, is punctuated by three native jabuticabeira trees, each on its own square, carpetlike swatch of lawn—a surreal landscape worthy of Kogan's own absurdist films. But at the same time, the courtyard conveys a poetic sensibility, akin to a Japanese rock garden, with an abstract play of light and shadows casting the trees' silhouettes against the textured, silvery stone walls.

And within its white-box enclosure, the 4,380-square-foot

Project: *Du Plessis House, Paraty, State of Rio de Janeiro, Brazil*
Architect: *Marcio Kogan Architect—Marcio Kogan, principal; Diana Radomysler, Cassia Cavani, project architects; Bruno Gomes, Oswaldo Pessano, Paula Moraes, Regiane Leão, Renata Furlanetto, Samanta Cafardo, Suzana Glogowski, project team*
Engineers: *Fernando Vasconcellos, Francisco Vasconcellos, Alberto Du Plessis*
Landscape architect: *Marcelo Faisal*

The terrace—extending from living/dining area to glass-tiled swimming pool—occupies a transition zone between indoors and out. Shaded overhead by a screening layer of bamboo under transparent, operable louvers, it can be open to—or sheltered from—the elements.

1. *Bedroom*
2. *Living/dining*
3. *Kitchen*
4. *Terrace*
5. *Swimming pool*
6. *Den*



The bedroom wing (this page, top and bottom; opposite, bottom), along one side of the court, rises to a pitched, ceramic-tile roof. An array of sliding panels—including glass and a frameless wood grille (below)—can screen or enclose the sleeping areas, as desired. In the court, each tree occupies its own discrete square of grass (opposite, top and bottom).

house, all on one level, feels incredibly open, yet casually private. Like the lens of a skilled filmmaker, the stone-clad container, with its well-placed apertures, performs almost imperceptibly as an editing device—deftly framing, masking, cropping, and otherwise controlling views to the outside. The nearby houses seem to drop away, no longer visible, in favor of the idyllically landscaped golf course fronting the flat Du Plessis site and the steeply sloping rain forest behind it.

The Du Plessis family—a São Paulo–based banker, her engineer husband, and their two young children—wanted a weekend/holiday place of easy maintenance and relaxed living in this mild climate. Kogan responded, in part, by fusing indoors and out. The pale, stacked-stone walls and concrete-and-riverstone floors run seamlessly from outside in (so even sandy feet would pose no problem here). An array of sliding panels or screens—including light-filtering grilles of indigenous muxarabi wood—sleekly stowed in hidden wall pockets, allow the three bedrooms to open up to the garden, sunlight, and/or fresh air to varying degrees, as desired. And just past the bedrooms, the courtyard flows into an indoor living/dining area, which, in turn, continues—through a simple portal spanning the entire 38-foot width of the room—onto a covered terrace, which then meets water's edge at the swimming pool.

THE STONE-CLAD CONTAINER PERFORMS ALMOST IMPERCEPTIBLY AS AN EDITING DEVICE—DEFTLY FRAMING, MASKING, AND CROPPING VIEWS OUTSIDE.

With the length of the pool matched to the width of the opening, and all materials meeting cleanly without a wrinkle or snag, the continuity feels effortless. But on closer inspection, the mark of a perfectionist at the controls lies everywhere beneath this relatively simple scheme: in the precise band of smooth black stones (drainage) extending across the courtyard; in the absence of visible mortar between the stone slabs (actually a stacked cladding over a brick substructure); or in the surgically incised stripe of wood planks (a path) alongside the building.

Yet the house has an ease about it: a place of deep, cushiony chairs and long, languid vistas, which penetrate the length of the structure and its courtyard to a pastoral landscape at one end and a rain forest at the other. Simultaneously part of the building and part of the backyard, the terrace occupies a semienclosed transition zone just inside the white box, capped overhead by a layer of bamboo screens beneath operable, transparent louvers. At times, entirely open to the elements and cast in slivers of sunlight, this space can also become a dry, though breezy, lounge from which to hear and watch the rain (perhaps as good as a movie).

Precise yet relaxed, private yet open, Modern yet traditional, in motion yet still, the Du Plessis House hovers comfortably amid the many sides of its personality. While reminiscent of a stage set, it's hardly a flimsy backdrop, but a very real and grounded venue, serenely contained within the texture and weight of authentic masonry. Sure, an absurdist filmmaker could try to roll up the garden, à la Tâti, and pack it away like a set of carpet samples, but the grass would stay rooted in place—leaving the stark, shadowy poetry that Kogan has created. ■

Sources

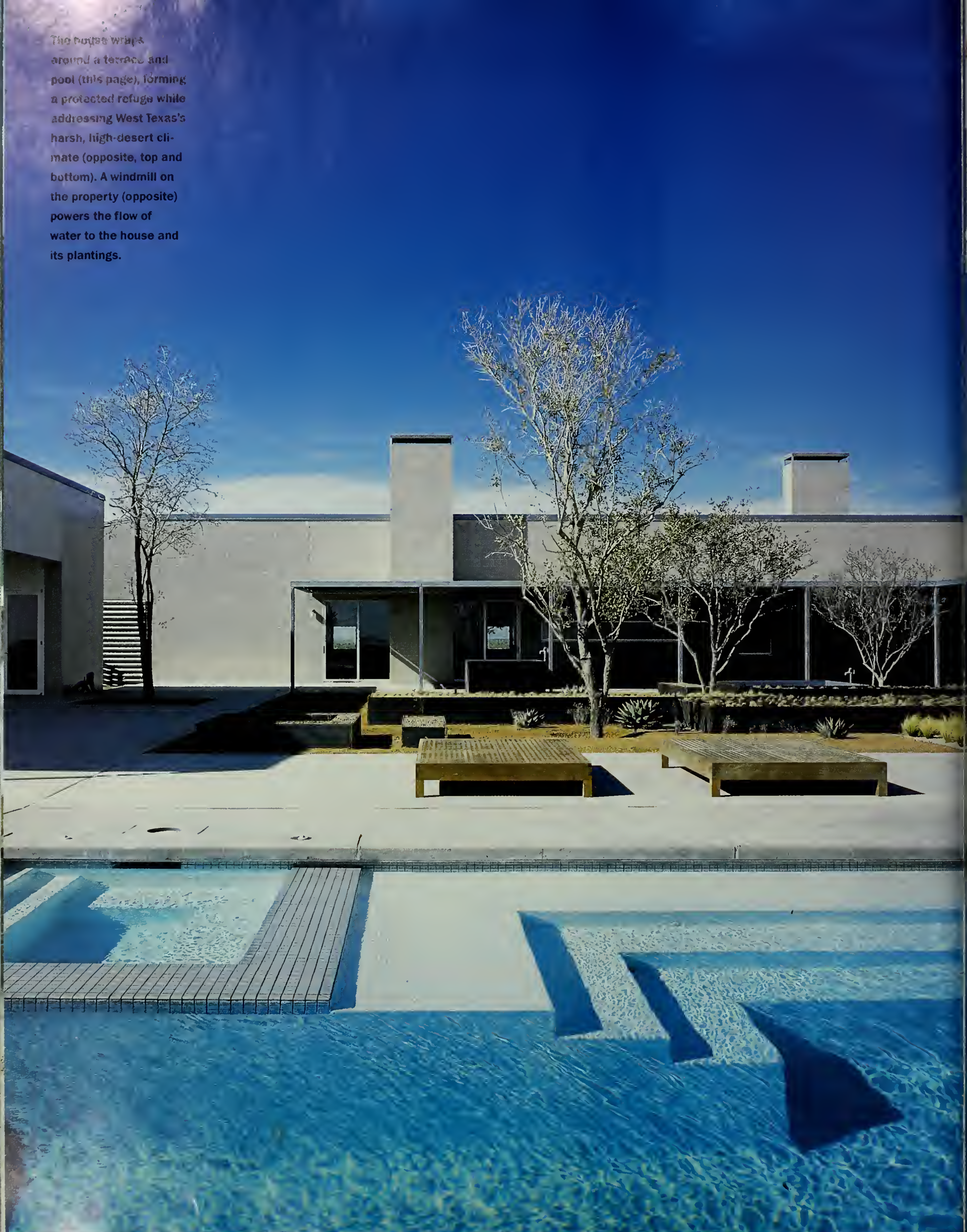
Stone cladding: *Belas Artes*

Windows: *Kiko Esquadrias; Zeca Cury*

Plumbing: *Deca (sinks, faucets, and toilets)*

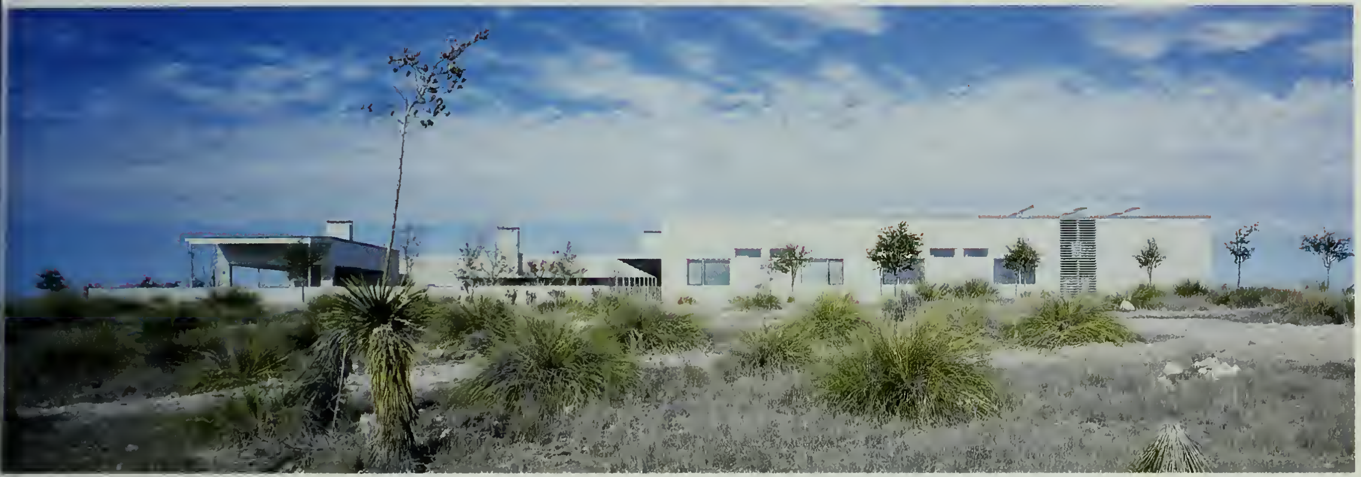
Glass tiles: *Colortil (in swimming pool and bathrooms)*

For more information on this project, go to Projects at **www.architecturalrecord.com.**



The house wraps around a terrace and pool (this page), forming a protected refuge while addressing West Texas's harsh, high-desert climate (opposite, top and bottom). A windmill on the property (opposite) powers the flow of water to the house and its plantings.

Against the rugged landscape of Marfa, Texas, architect Carlos **Jiménez** gives his sprawling **CROWLEY HOUSE** a plainspoken beauty



By Michael Benedikt

Marfa: far from everywhere, in the high desert of West Texas, where the altitude deepens the blue of the sky, and the shadows of the land stretch improbable distances at dawn and dusk; where industrial and farm buildings along the railroad appear as dignified as they are worn, simple but no two the same. It was here, in 1978, that the late New York Minimalist sculptor Donald Judd chose to acquire and upgrade several utilitarian buildings to house his own art and collection, and in which to work and live. The town has been transforming itself ever since. Judd died in 1994, but with his Chinati Foundation at its cultural base, Marfa has become a high-art pilgrimage destination and settlement for artists, writers, architects, and art patrons entranced by the mix of spareness, sophistication, serenity, and extraordinary qualities of light.

Two such patrons, Tim and Lynn Crowley, longtime friends and previous clients of architect Carlos Jiménez, asked him to design a house for them in Marfa. The Crowleys—a lawyer and a gallery owner—had been "commuting" here from Houston by private jet for several years. Owners of a good deal of land in the area, they also operate the Marfa Book Company, a wonderfully urbane bookstore and coffee and wine bar, that has become the meeting place, message station, and gossip-exchange center for the local art set and visiting pilgrims.

The 8,000-square-foot house they built spreads out on the highest rise of a 3,000-acre, antelope-crossed desert plain outside of town, but seems remarkably modest, almost fragile, on approach. The impression continues as one comes closer. With pale, concrete-block walls almost disappearing into the landscape, the low, flat-roofed building responds to the arid climate with slender shading roofs and slatted walkway coverings, recalling elements added and adapted in an as-needed way. The plan (exclusive of outbuildings and shaded areas) extends into three wings, each one-room wide in the ranch-house tradition. As both clients come from large families, the layout reflects a need to accommodate visitors for weeks at a time. Sunlight enters major rooms on at least two sides, and every window can open to the breeze.

This one-story home will remain accessible as the owners age.

Michael Benedikt is the director of the Center for American Architecture and Design at the University of Texas at Austin.

Project: *Crowley House, Marfa, Texas*

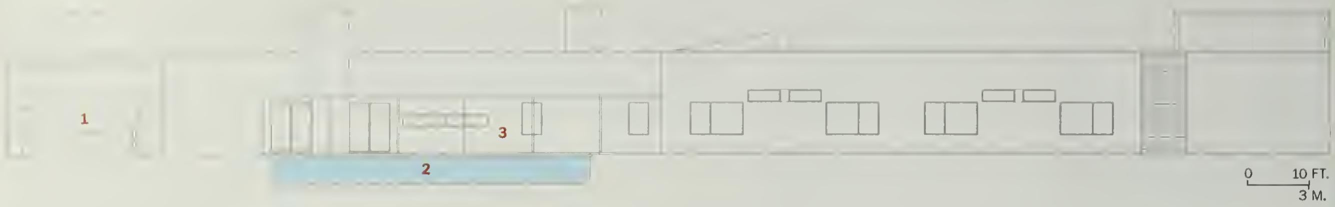
Architect: *Carlos Jiménez Studio—Carlos Jiménez, principal; Brian Kelly Burke, associate; Leslie Witt, Cris Ruebush, Brett Zamore, Assoc. AIA, project team*

Engineer: *Dan Ray*

Consultant: *Tokerud (furniture)*

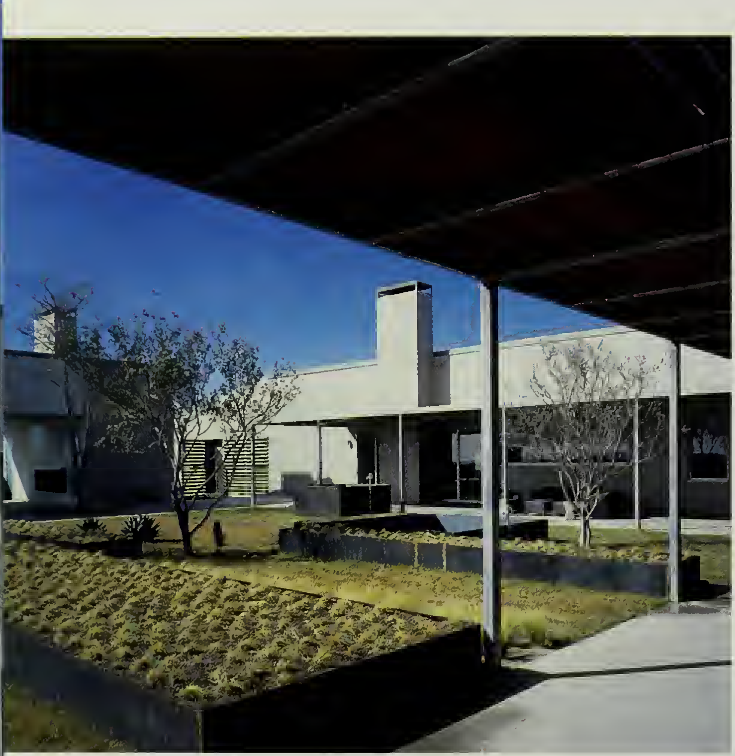
Trades: *R&B Welding, Hendi Enterprises (metal fabrication); Lippe's A/C & Refrigeration (HVAC); Barmore Plumbing (plumbing); Dave Howard Electrical (electrician)*

General contractor: *Cook Construction*



SOUTHEAST SECTION AND ELEVATION

1. *Pool room*
2. *Swimming pool*
3. *Courtyard*



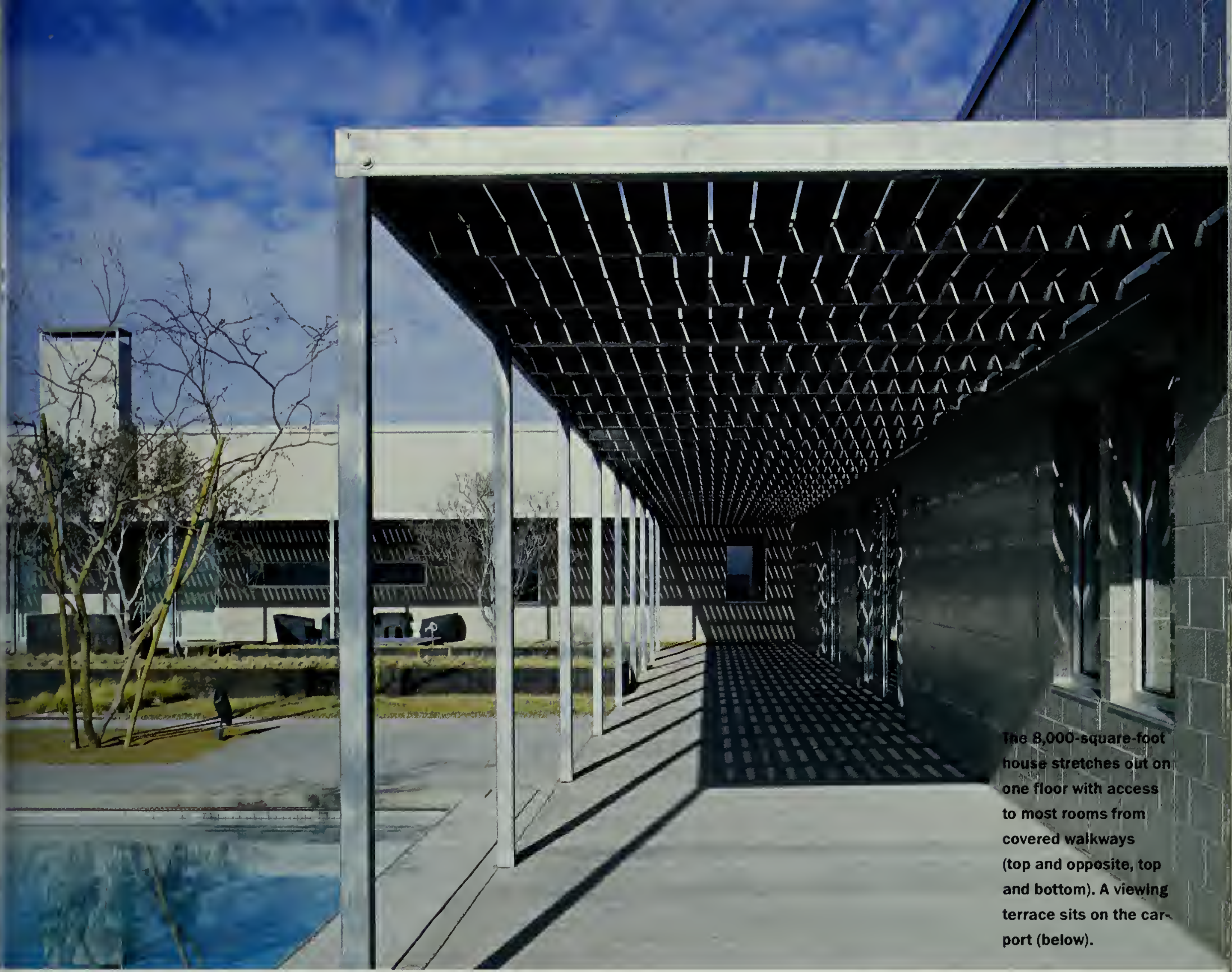
Unlike the traditional ranch house, however, its plan has almost no radial component, no center, no attempt to minimize circulation. The building's rectilinear S-footprint creates two courtyards: an inner, private one, and an outer, public one. The outer yard must be crossed to gain access to both the front and kitchen doors. Around the two courts, all movement happens, inside and out. The house's *corredor*—its outdoor passageway—and high pool-house porch shelter the pool and garden of the inner court on three sides. Without such protection, a vulnerable garden could not survive the area's brutal wind storms. This inner realm provides a refuge: paradise.

The living room, on the other hand, looks out rather than in. Blocky, unapologetic in scale, it juts into the barren landscape at its own powerful angle, offering an untoppable view of the Davis Mountains. A terrace over the carport provides another view outward—up to the heavens for stargazing. (The region's dry, clear, and intensely dark night sky also provides the setting for an important observatory nearby.) The upper deck, framed with steel columns and beams, but not enclosed, hovers above the house as a lightweight, almost ethereal element.

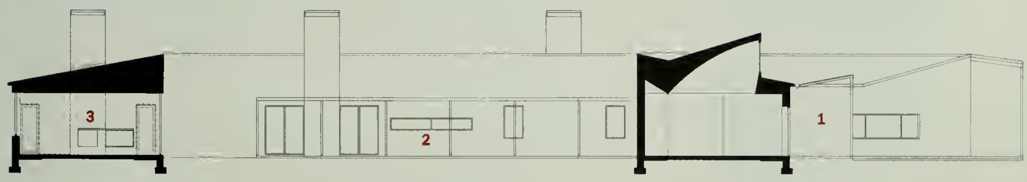
FOR ALL ITS SIZE AND SPREAD, THE HOUSE REMAINS MODEST, COSTING FAR LESS THAN IT COULD HAVE.

Marfa's remoteness made it difficult to obtain work crews and materials, "which is why the house took three years to build," says Jiménez. The architect tailored certain construction and material decisions to the skills of available builders. (Since wood framing, for example, was not an option, he specified aluminum-stud walls.) In plan, the house's exterior walls look thin relative to the scale of the rooms. In reality, they are remarkably thick: 16 inches almost everywhere, with the concrete-block exterior given a terrazzolike finish. Inside, the walls show off their dimensions with deep sills and hefty aluminum window sections. One can see why Jiménez gave the building's envelope such depth. A spatially extended building with a visually modest roof and delicate shading appurtenances needs thick walls to establish its seriousness, its strength against the desert and time.

For all its size and spread, this project remains modest, costing far less than it could have. Standing-seam, galvanized-aluminum roofs meet the observatory's local restrictions on reflectivity. Floors are pine, and walls gypsum board, ready for art. (The Crowleys have begun to install their collection, but given the setting, it's hard not to see almost every window as framing a work of art.) With cabinetry of painted, medium-density fiberboard; windows of commercial-grade aluminum; bathrooms sleekly compact; and hardware and appliances tasteful, but not the absolute best, the house exhibits an economy of materials and means. This modesty did not result from any budget problem but was motivated by a preference, on the part of both the architect and his clients, for simplicity, a desire to avoid pretension. As a result, the Crowley House is a Modern home consistent with Jiménez's earlier work: trim, spacious, economical at its core,



The 8,000-square-foot house stretches out on one floor with access to most rooms from covered walkways (top and opposite, top and bottom). A viewing terrace sits on the carport (below).



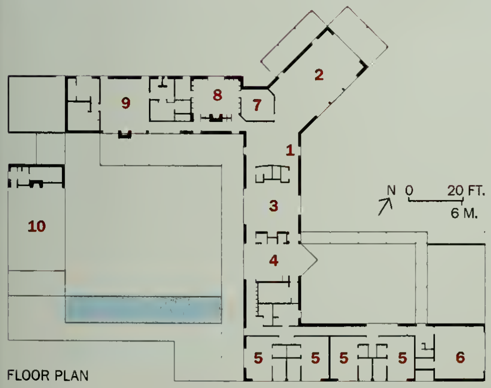
SECTION THROUGH COURTYARD

1. *Main entry*
2. *Courtyard*
3. *Pool room*

Daylight plays an important role in animating the spacious interiors. For the two-story entry foyer (left and opposite), the architect brought in sunlight from a clerestory, a skylight, and a glass door. Deep sills reveal the depth of the house's exterior walls, while a palette of simple materials expresses the clients' sense of restraint (bottom). A large bathroom window brings a piece of the desert inside (below).

sharply composed, poised, and urbane. Minimalist? Yes. But painlessly so.

This project struggles nobly, and with some success, to emulate the straightforwardness of Marfa's sheds—and to respond to Judd's silent, enigmatic sculptures. "In the astonishing, fast-changing light here, a repetitive piece—with just a slight variation—by Judd can become pure music," observes Jiménez. "And those rays can make even the most everyday structure or object poetic." This house inspires us to search through the multiple meanings of the word *light*—from illumination to nonheaviness to levity to the heavens. Here, a deep and unresolved tension remains between the ordinary and the exalted, the humble and the grand, the material and the immaterial. Bringing all these qualities together, at peace, in a single building is a difficult quest. Its full resolution might require the passage of time. ■



FLOOR PLAN

1. *Main entry*
2. *Living*
3. *Dining*
4. *Kitchen*
5. *Bedroom*
6. *Garage*
7. *Media*
8. *Library*
9. *Master bedroom*
10. *Pool room*

Sources

Roof: *Berridge*

Windows and doors: *Kawneer*

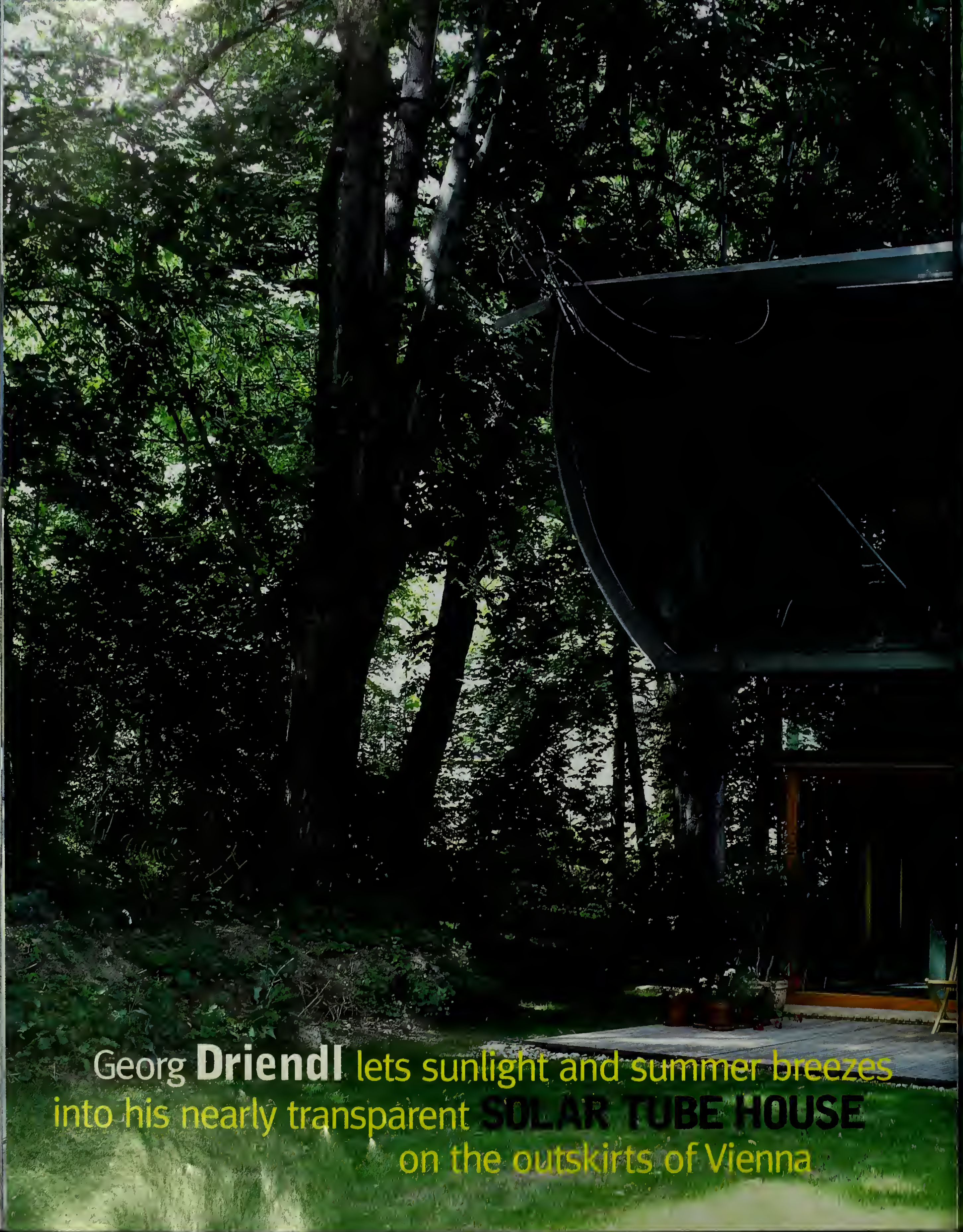
Cabinetry and woodwork: *Alpine Contracting; Silla; Houser Group*

Paints and stains: *Kelly-Moore*

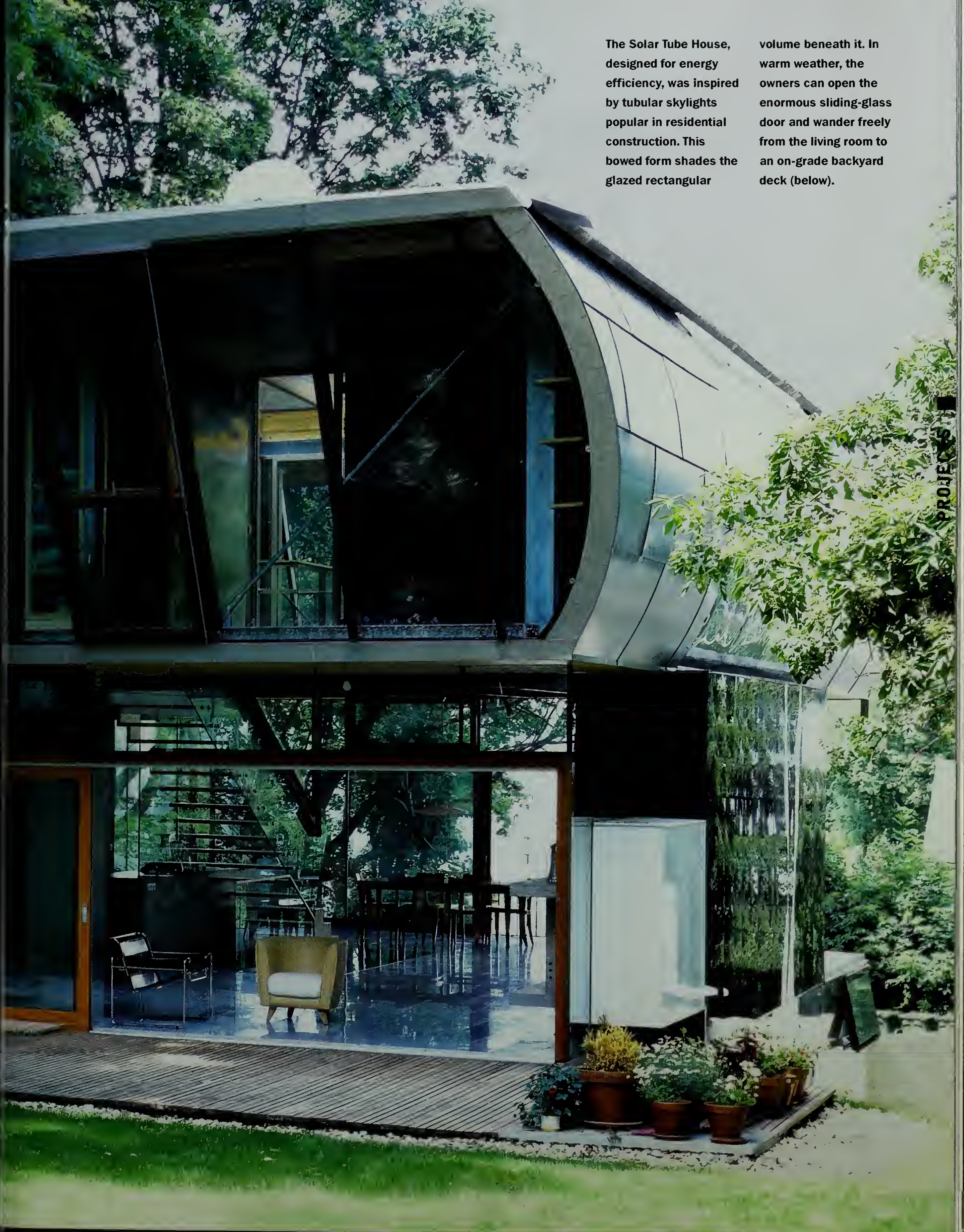
Tile: *American Olean*

Lighting: *Lightolier; Bega; Hubble; Norber Belfor; Neidhardt*

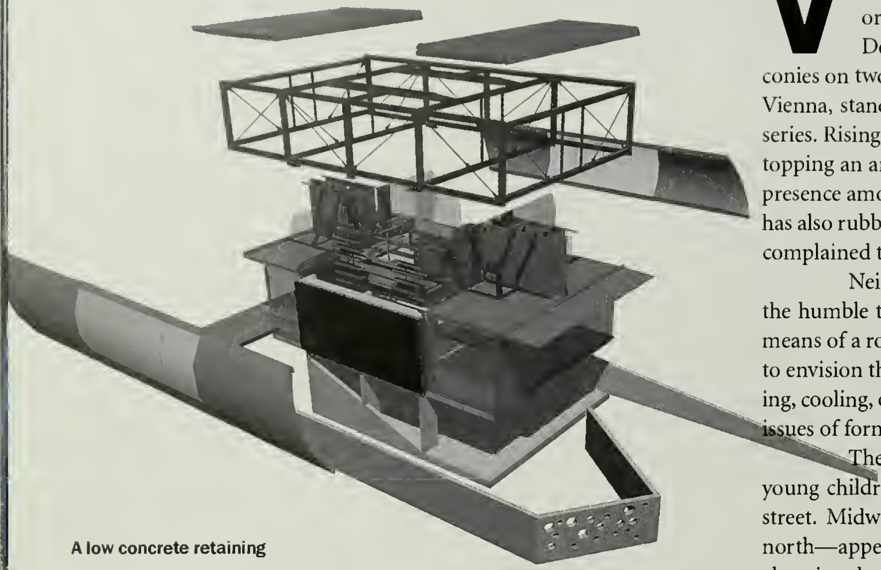
For more information on this project, go to Projects at **www.architecturalrecord.com.**



Georg **Driendl** lets sunlight and summer breezes into his nearly transparent **SOLAR TUBE HOUSE** on the outskirts of Vienna



The Solar Tube House, designed for energy efficiency, was inspired by tubular skylights popular in residential construction. This bowed form shades the glazed rectangular volume beneath it. In warm weather, the owners can open the enormous sliding-glass door and wander freely from the living room to an on-grade backyard deck (below).



A low concrete retaining wall wraps the site, following its grade. The upper floor's steel frame, placed inside the structure, protects against thermal bridging (above). Upstairs, bedrooms lie hidden from view behind the steel cladding of the "tube," but the bathroom gets daylight (below).

By Deborah Snoonian, P.E.

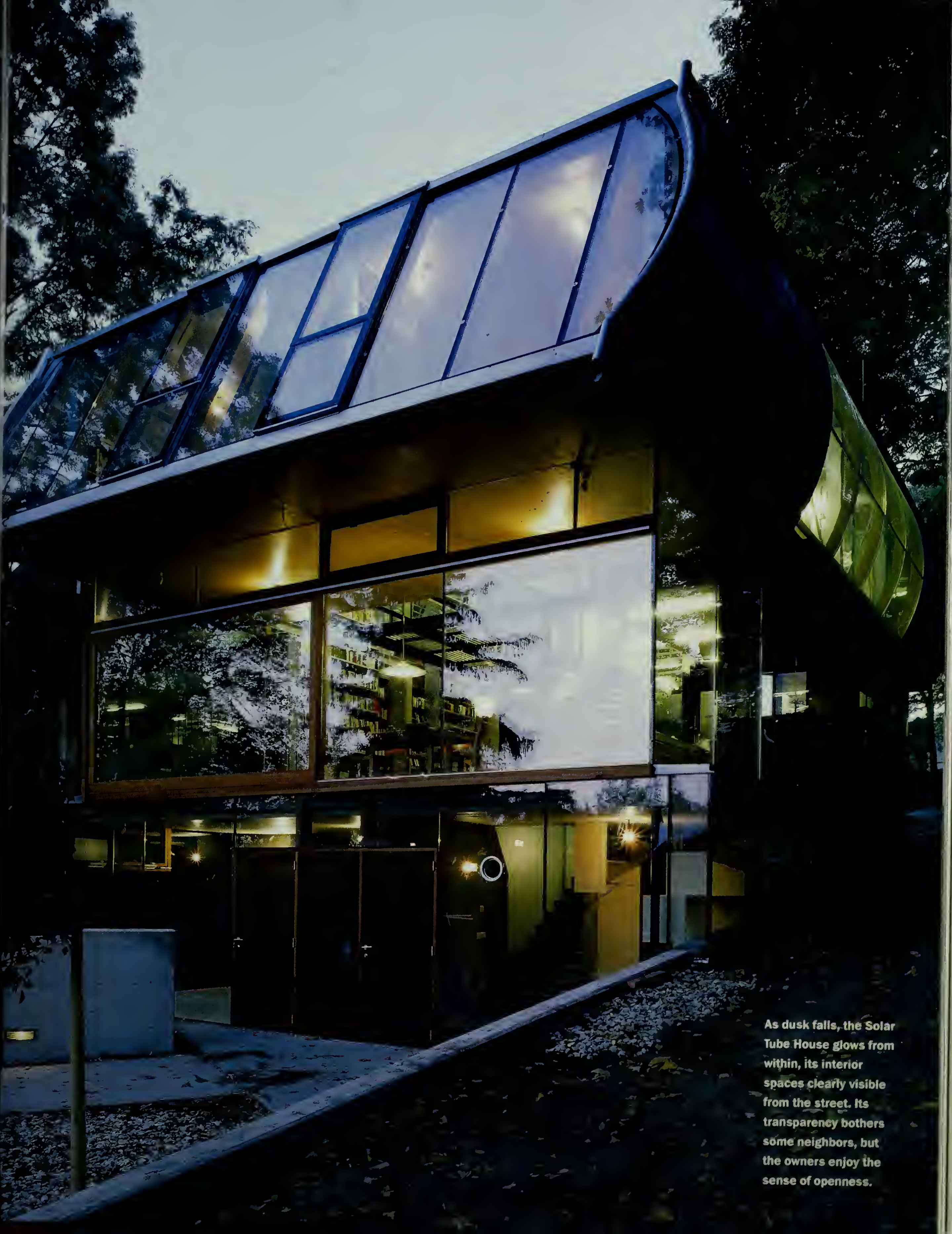
Viennese architect Georg Driendl likes to name the houses he designs after the sun. His Solar Box, for instance, combines an orthogonal, glazed section with a 19th-century home. Solar Deck, a concrete-and-glass structure, has wraparound balconies on two levels. The Solar Tube House, in the northwest outskirts of Vienna, stands out as the most inventive and visually intriguing of the series. Rising to a metal-clad, glass-fronted tubular form, like a telescope topping an amply glazed rectangular volume, the house offers a singular presence among the traditional homes it rubs shoulders with—though it has also rubbed a few locals the wrong way. "One woman across the street complained that it ruined the neighborhood," Driendl reports cheerfully.

Neither its name nor form are frivolous. Driendl was inspired by the humble tubular skylight, a device that channels sunlight indoors by means of a rooftop collector, reflective pipe, and diffuser. His novelty was to envision the entire house as a solar collector, one that needs little heating, cooling, or electric illumination. From that starting point, he resolved issues of form, structure, and material.

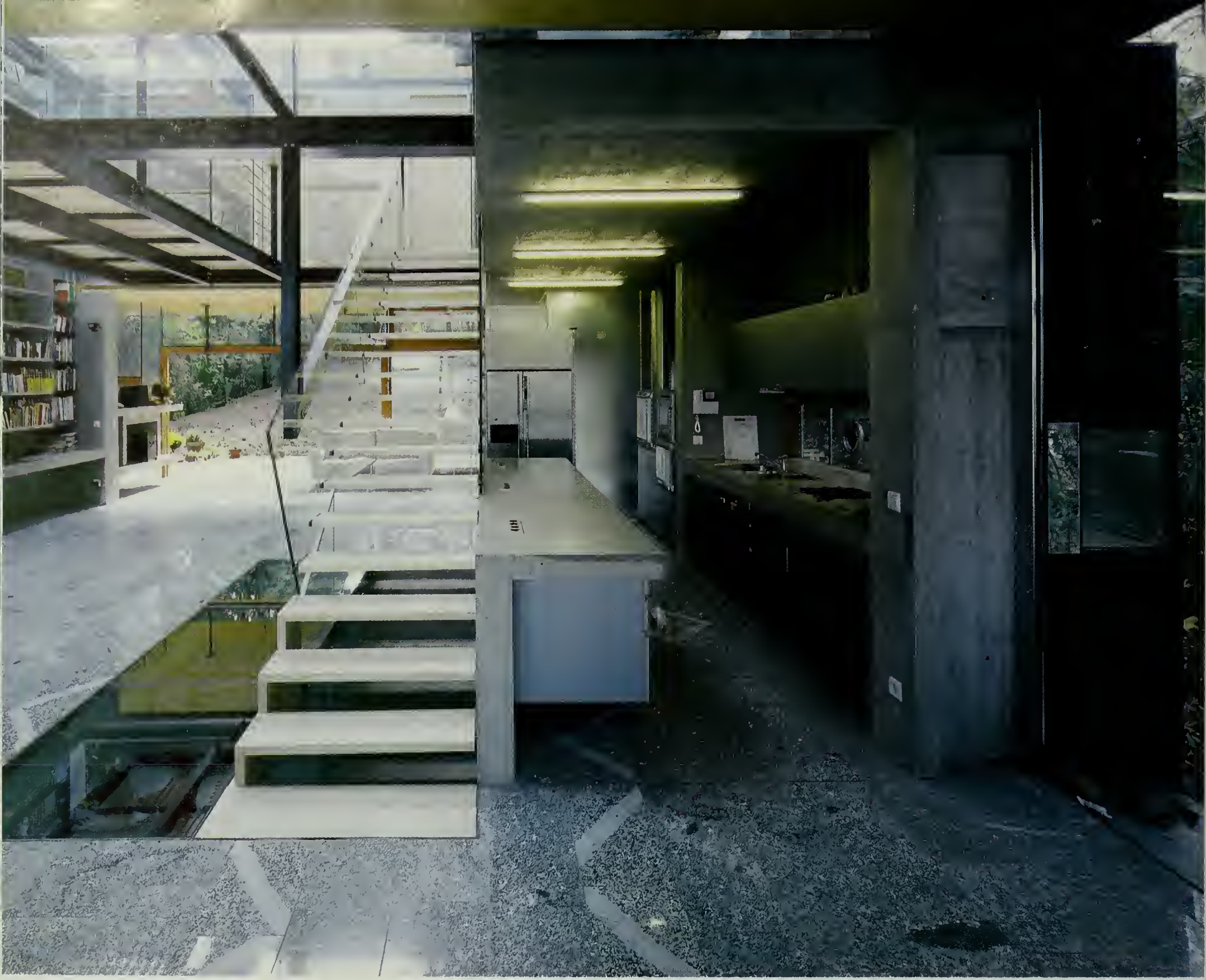
The family that commissioned the project, a couple with two young children, had bought a narrow, wooded lot, sloping up from the street. Midway up, a view of the Alps' foothills—several miles to the north—appears. Driendl sited the house at the bottom of the slope, elevating the main living spaces above street level to capture the vista. By placing Solar Tube at the lowest point, he was able to take full advantage of natural ventilation and the shade provided by surrounding trees.

Some houses seduce by their mystery; the Solar Tube's allure comes instead through transparency, openness, and warmth. Driendl glazed nearly the entire facade to dissolve boundaries between indoors and out, an especially pleasant effect in summertime, when a leafy tree canopy

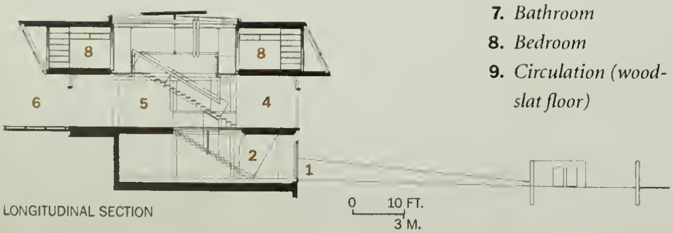
Project: *Solar Tube House, Vienna, Austria*
Architect: *Georg Driendl Architekt—Georg Driendl, principal; Franz Driendl, Franz Bergles, Reinhard Weber, Christian Formann*
Engineer: *Ernst Illetschko*
Landscape: *Schumacher · Schindl*



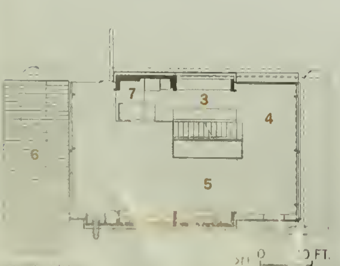
As dusk falls, the Solar Tube House glows from within, its interior spaces clearly visible from the street. Its transparency bothers some neighbors, but the owners enjoy the sense of openness.



1. *Entry*
2. *Ground floor*
3. *Kitchen*
4. *Dining area*
5. *Living room*
6. *Deck*
7. *Bathroom*
8. *Bedroom*
9. *Circulation (wood-slat floor)*



LONGITUDINAL SECTION



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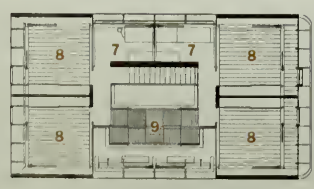
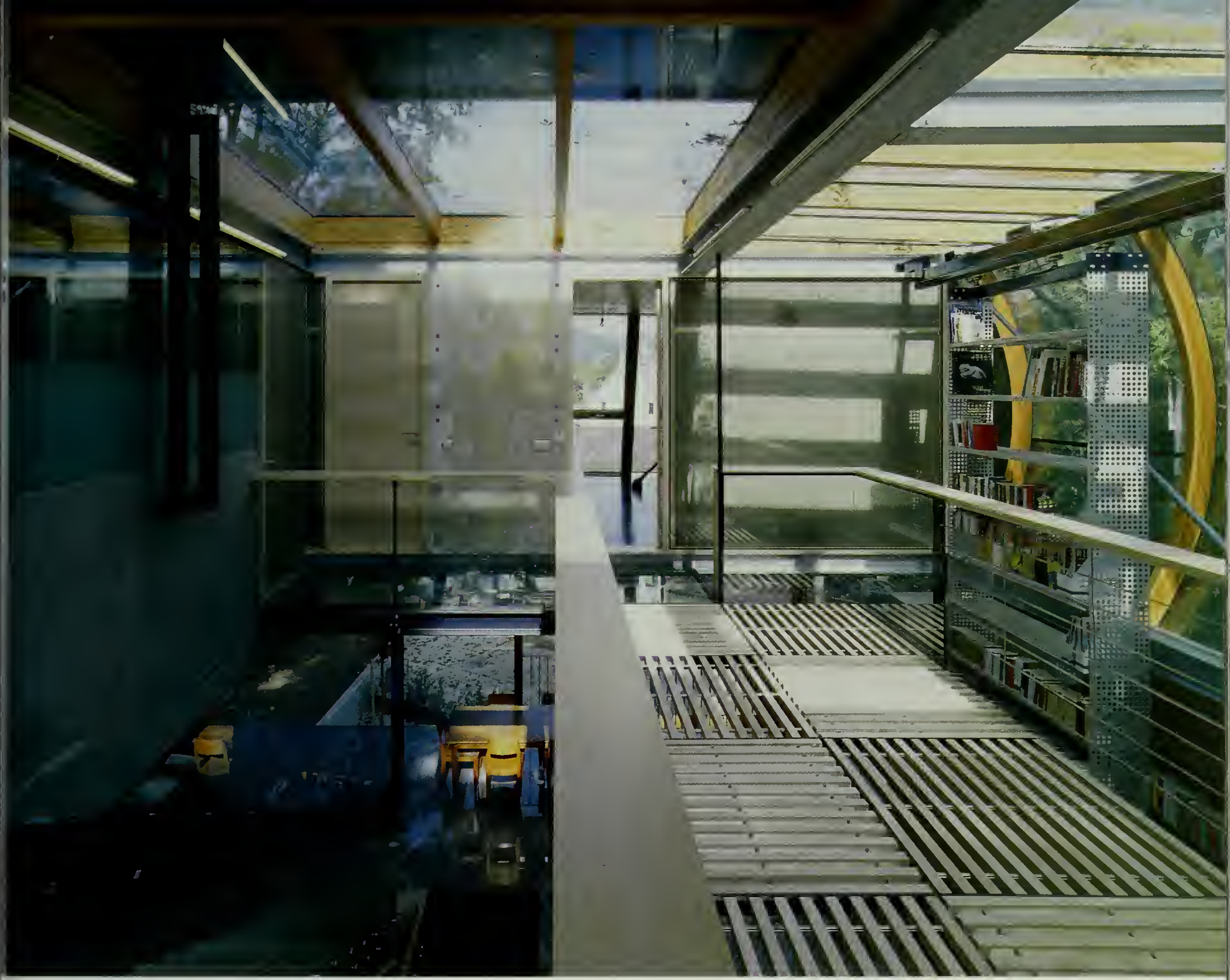


SECOND FLOOR

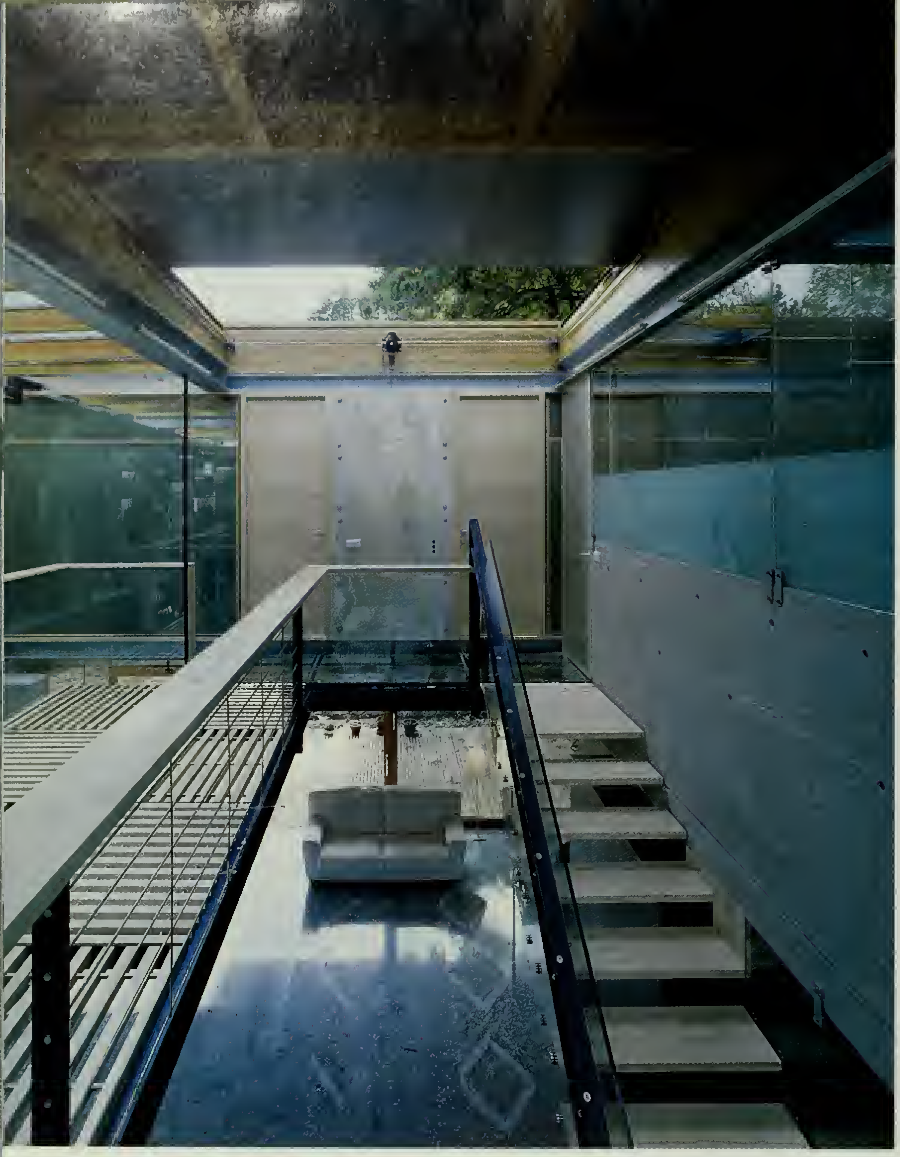
practically nestles the house among its branches. A neutral, quiet interior of polished granite floors and concrete built-ins, designed by Driendl, doesn't compete for attention with the views, while open stairwells allow glimpses throughout the house from many vantage points. In winter, when the canopy sheds its leaves, sunlight provides passive heating, augmented by efficient radiant heating in the floor slabs of the ground and main levels.

The lowest floor consists of two main spaces: a foyer containing a concrete stairwell, flooded with daylight from above, and to its left, a large room with a separate entrance from the outside. The original owner, a doctor, used the space as an office for a home-based practice. (But his family enjoyed the Solar Tube only briefly, selling it after he and his wife divorced.) The new owners are turning this ground-floor space into a playroom for their children.

It might be tough to keep the kids downstairs, though, because the main level has the character of a tree house. "Children love the Solar Tube because they absorb information constantly from all places," Driendl says. "It feels like play to them." (Adults are by no means immune to this effect. A visitor's temptation is to run toward the view of the Alps and then slide across the floor in wool socks—indoor skiing!) Here, a continuum of kitchen, living, and dining areas, all on grade, extends onto the back deck



Driendl designed the concrete bookshelves, cabinets, and fireplace (opposite). Upstairs, in the "tube" (above and right), the owners can browse two-story sliding bookshelves while standing on a floor of wood slats that filters overhead light to the main level. Late-day sunlight warms the dining area (left).



A rolling skylight (above) lets excess heat escape. A glass-and-wood stair rises gracefully alongside the kitchen (top right). The upper-floor bathroom has its own skylight and concrete built-ins (bottom right).

and garden. Enormous sliding glass doors allow cooling breezes (and probably a few birds) to sweep through the interior. When the weather gets too cold to open the doors, transom windows beside the sliders and a rolling skylight create a chimney effect to vent excess heat.

If the main level evokes a tree house, the top floor suggests a cozy perch. The marriage of form and function becomes most apparent in this flattened-tube structure, where north and south sides overhang the lower levels to provide shading. Four modest bedrooms occupy these "corners," collecting warm air from the floors below. The children's bedrooms face the mountains, with curved walls and sloped windows offering the pleasures of tents and high-rent views. The back bedrooms provide for more privacy and tranquility.

The tube's structural system, a steel endoskeleton, obviates the need for supporting columns. With a nod to Driendl's insistence on a transparent aesthetic, walls of colored paper, sandwiched between translucent [illegible] panels, divide the rooms. Semitransparency also appears in the [illegible] ways: part glass and part an open system of wood slats, spaced nearly two inches apart and arranged in a parquet pattern. This "floor" must be negotiated with the care of a balance-beam gymnast. Those who fear heights or twisted ankles will feel more comfortable reaching the bedrooms via the bathroom instead.

The current owners have quickly come to treasure the house's uniqueness. The husband has even proposed a round of "trading spaces," in which owners of Driendl's eight or so Vienna houses would swap homes for a day and meet that night to discuss them. He lays out his vision: The Solar Tube would serve as the party space, its beaconlike street presence enticing reticent neighbors to join the party for a drink—openness, after all, always seems warmer from the inside. After the last guest leaves, the family would retire to the treetop retreat, its bowed walls like a set of parentheses safely enclosing them as they slumber. ■

Sources

Structural system: *Holzbau Berlinger*

Concrete: *Wagnerbau*

Metal-and-glass curtain wall: *Foidl Glasbau*

Steel cladding: *Stauber*

Windows and doors: *Gruber Tischlerei*

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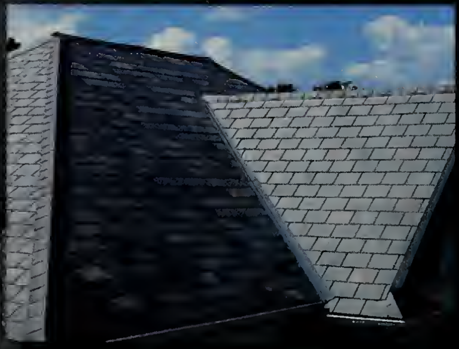

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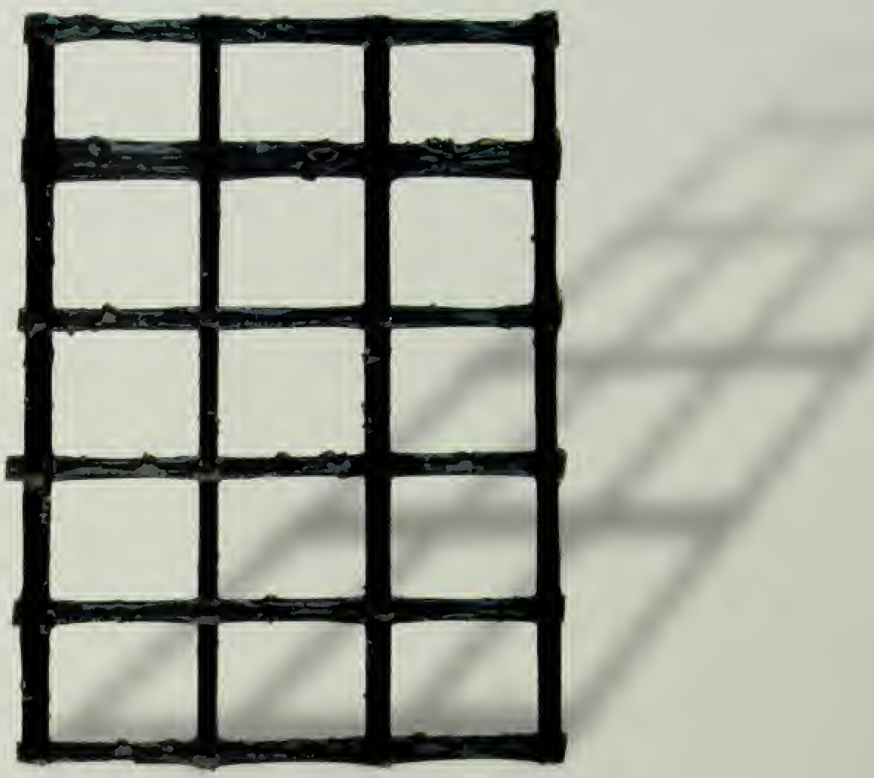

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Aging Baby Boomers Want Smart Houses for Their Golden Years

UNIVERSITY RESEARCHERS ARE DEVELOPING INTELLIGENT ENVIRONMENTS FOR AGING IN PLACE

By Barbara Knecht

Oatfield Estates Extended Family Residences in Milwaukie, Oregon, is a fully wired retirement village. Each residence has a programmable logic controller (PLC), which automates appliances, HVAC systems, and even monitors the occupants.

The average middle-class house today is about as smart as the original Volkswagen Beetle when it was introduced 55 years ago. But whereas cars have gotten very smart, houses have not. As evidence, compare the VW Phaeton with the Beetle, a shell on four wheels with manually operated windows and a gaugeless gas tank. The Phaeton electronically conveys the owner's personal information to the car; opens the door, adjusts the seat, seat belt, mirrors, steering wheel, and air-conditioning to the preferred settings; and starts the car without the driver ever having to put the key in the ignition. The interior of this automobile has four climate-controlled zones and 28 solar cells in the sunroof to power a ventilation system that cools the car when it is parked in the sun. The interior humidity is automatically controlled to prevent the windows from fogging up. At the touch of a button, the automatic-leveling air-suspension system can be reset for different driving conditions. The satellite navigation system will guide you verbally so your eyes never leave the road.

Barbara Knecht is an architect and writer based in New York and Boston who writes regularly about housing issues and building technology.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 176 and follow the instructions. Other opportunities to receive Continuing Education credits in this issue include the following sponsored sections: "Impact-Resistant Systems: Windows and Doors Take The Coast by Storm.," sponsored by Weather Shield Windows & Doors, page 187, and "The Greening of 'White Goods'—Environmental Considerations When Specifying Appliances," sponsored Whirlpool, page 193.

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Describe the meaning of the term "smart house."
2. Explain the importance of system integration.
3. Discuss the effect smart houses can have on medical home care.

For this story and more continuing education, as well as links to sources, white papers, and products, go to **www.architecturalrecord.com**.

These functions are part of integrated systems, working together, not a collection of expensive accessories. If just a collection of gadgets defined a smart house—infotainment systems, radio phones, personal computers, wireless baby monitors, high-speed Internet connections, programmable heating, cooling, and cooking systems—then the concept of integrated systems would have no relevance. The problem is that the gadgets people buy aren't that smart. Individually, they have some intelligence, but they don't automatically cooperate with one another to simplify home life, and they clutter tables and floors, stick to the walls, and overload outlets.

While there is no shortage of high-end houses that are on their way to integrated and centralized control of HVAC, entertainment, communications, security, and lighting systems, they still require the owner to instruct the controller about desired actions. The smart house of the future will be an integrated system of electronics, sensing equipment, and other home technologies that communicate with one another and a central controlling computer. The system will know or sense things about the occupant and the environment and will be able to make adjustments and offer reminders without human intervention.

"Smart" labs for living

Several universities are developing smart houses, or "intelligent environments," as they are sometimes called, that go far beyond the state of the luxury market. And like so many other things, it is the aging boomers who are driving that research. There are nearly 80 million of them, and as everyone knows, they are living longer, healthier lives than any previous generation. Now they are poised to flood the health-care and social-security systems. Smart-house technology is one way to respond to diminishing cognitive and physical functioning, which currently lands people in assisted-living and nursing homes.

The state-of-the-art technology today straddles what is and what will be. The basic tools of smart houses exist: sensors (audio, motion, and biological); video cameras; wiring (Category 5, coaxial, fiber optic); wireless (radio frequency [RF] and infrared [IR]) communications; devices (appliances, interactive monitors, speakers); and computers. The sensors collect information. Communication lines route data and information among the devices and the computer. The computer analyzes data and sends instructions out to the devices. This is basic technology that already exists in the security and HVAC systems in many houses. Building on this, the possibilities envisioned in these research centers are much more sophisticated.

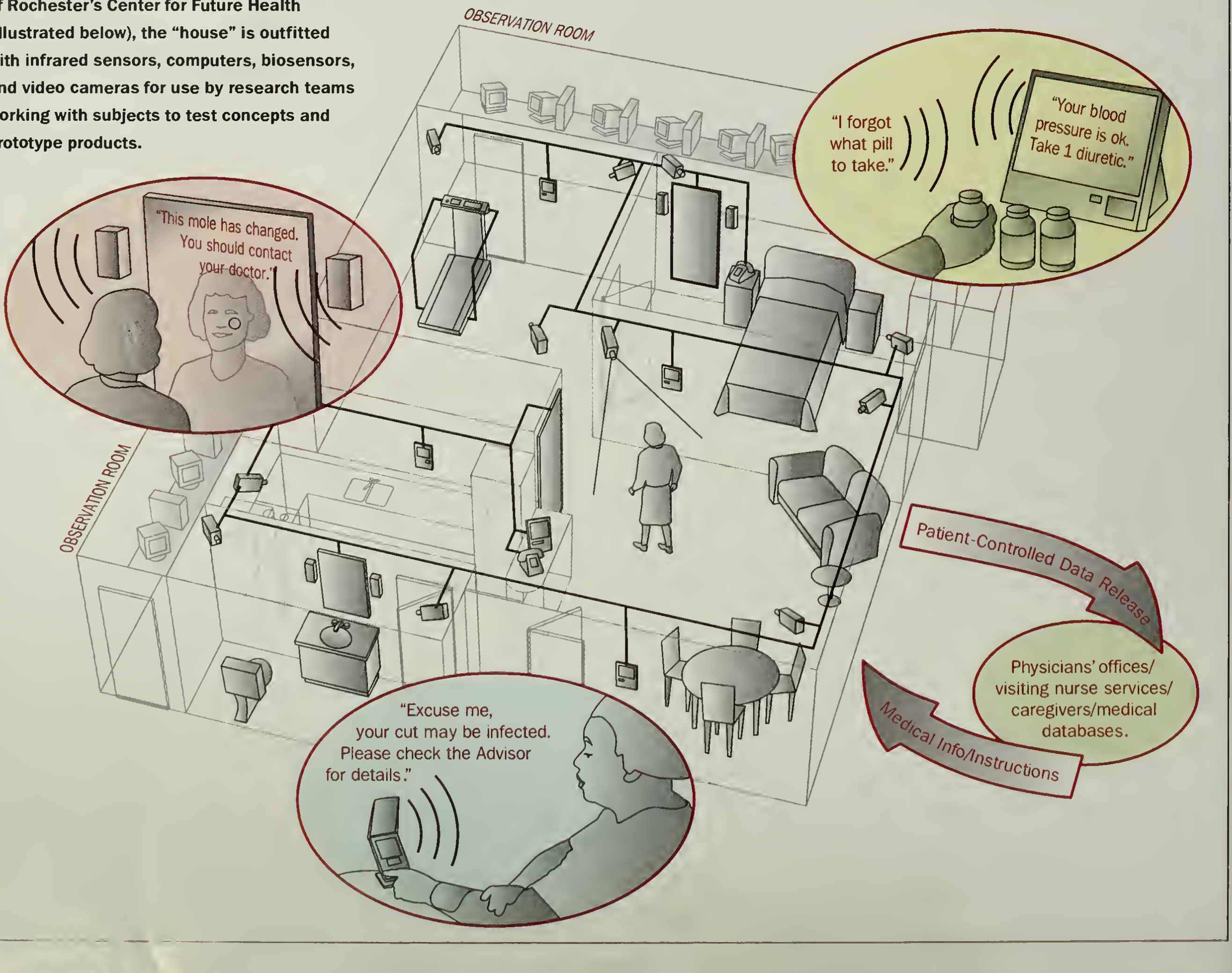
Researchers are reaching for *pervasive* or *ubiquitous computing*, wherein tiny devices are invisibly embedded in the environment and seamlessly integrated with one another and the humans who benefit from them. They will fit in so naturally, be so intuitive and effortless, that people will no longer be aware that they are using computers. Instead of humans learning and adapting to computers, the computers will adapt to humans.

Researchers at the University of Rochester, Georgia Institute of Technology, University of Colorado at Boulder, and the Massachusetts Institute of Technology (MIT), among others, are experimenting with sensors, cameras, and monitors installed in house labs to learn about physical and social environments and the patterns and habits of the occupants. The information is stored and analyzed by a computer (hidden or displayed) that can then use it to help people with preventive health care, alert remote family members to changes in living patterns, or remind the occupant to take medication or feed the fish.

RESEARCHERS ARE REACHING FOR *PERVASIVE* OR *UBIQUITOUS COMPUTING*, WHEREIN TINY DEVICES ARE SEAMLESSLY INTEGRATED WITH ONE ANOTHER.

The mission of the Smart Medical Home at the University of Rochester's Center for Future Health (www.futurehealth.rochester.edu) is to study how a smart house can aid in the prevention and early detection of disease. According to Cecilia Horwitz, the center's associate director,

At the Smart Medical Home at the University of Rochester's Center for Future Health (illustrated below), the "house" is outfitted with infrared sensors, computers, biosensors, and video cameras for use by research teams working with subjects to test concepts and prototype products.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"This mole has changed. You should contact your doctor."
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Patient-Controlled Data Release
Physicians' offices/ visiting nurse services/ caregivers/medical databases.
Medical Info/Instructions
"Excuse me, your cut may be infected. Please check the Advisor for details."

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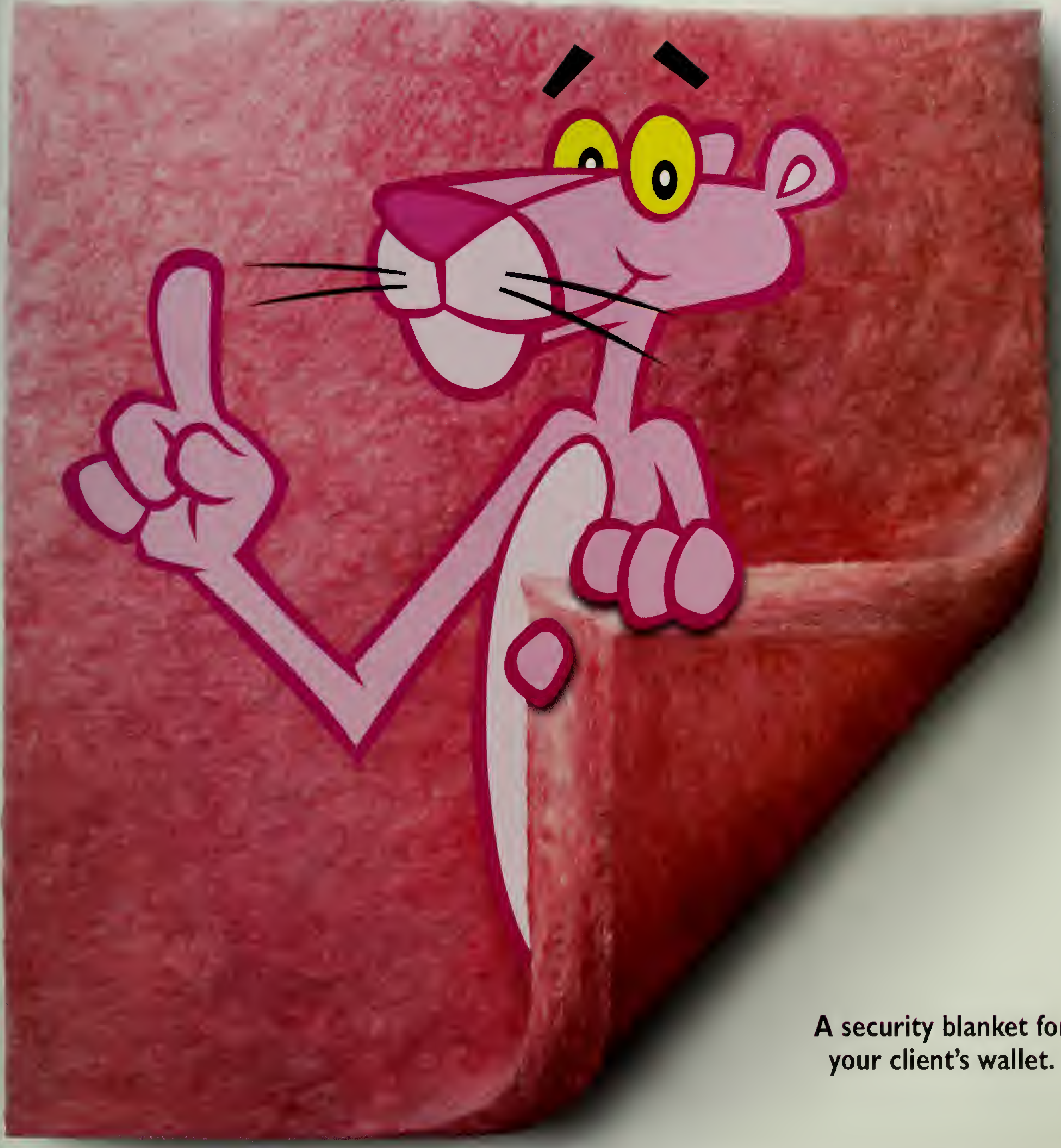
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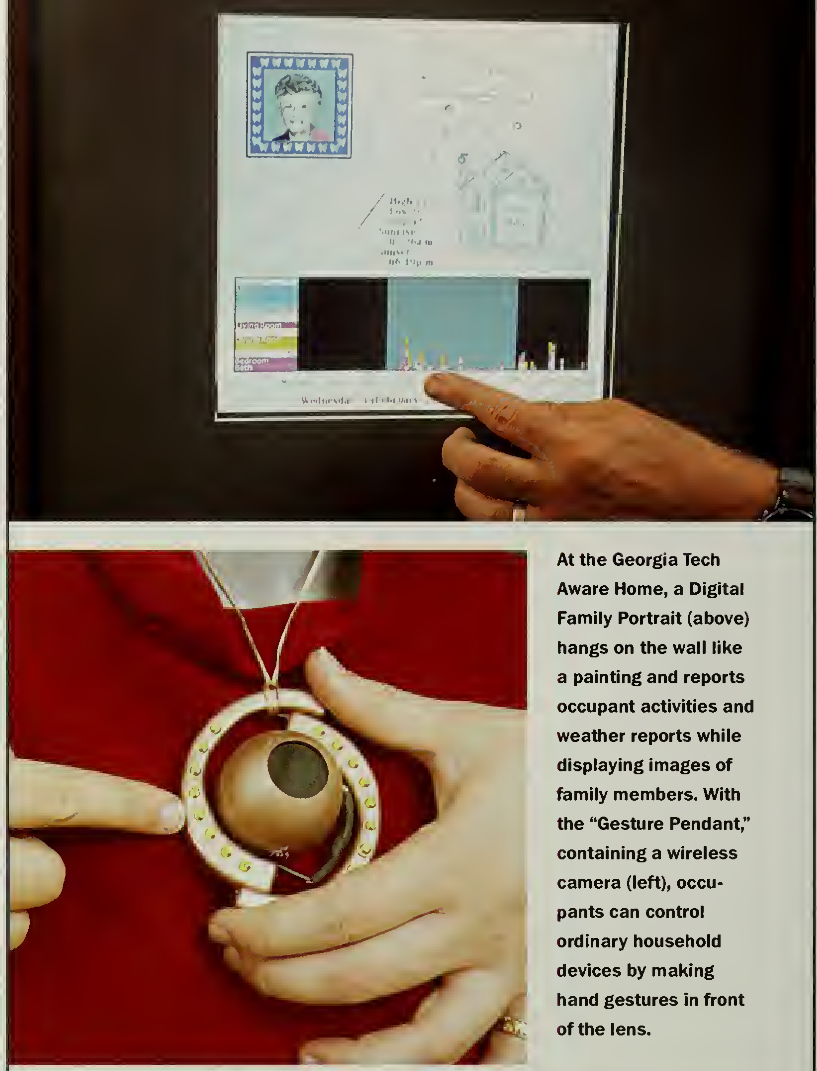
"Today, people over 65 use the health-care system six times more often than those under 65. We need to figure out ways, beyond diet and exercise, to keep people healthier longer. When a person visits a doctor, what can he or she really tell the doctor about their vital signs over the previous six months?"

In the Smart Medical House, the sensors and monitors can keep data on traditional vital signs, such as blood pressure and pulse and respiration, but will also measure the "new" vital signs, such as gait, behavior patterns, sleep patterns, general exercise, and rehabilitation exercise, among others. "Do you know that a change in gait can be an indicator of neurological disease or an oncoming stroke?" asks Horwitz. "Eventually 'Chester,' a computer that is an interactive medical-advising system, will be able to ask the occupant about that limp the sensors picked up and suggest a visit to the doctor if necessary. In theory, we should be able to catch a stroke three weeks before it happens!"

Not everyone reacts well to the prospect of "surveillance," but for many, the advantages of aging in place will vastly outweigh the alternative of going to assisted care before it is necessary. Gregory Abowd, associate professor at the Georgia Institute of Technology College of Computing in Atlanta and former director of its Aware Home Research Initiative (www.cc.gatech.edu/fce/ahri/), offers this approach: "We are starting with the first challenge: to create an 'aware' environment that is autonomous. Then, if you are able to make an environment that is aware of activity and occupant location, what valuable services can you build to support human need?" An aware environment is one that knows who is in the house, where they are, and perhaps what they are doing. Abowd observes that the current focus is on personal health, but the applications will be used for safety, security, and sustainability throughout the house.



At the Georgia Tech Aware Home, a Digital Family Portrait (above) hangs on the wall like a painting and reports occupant activities and weather reports while displaying images of family members. With the "Gesture Pendant," containing a wireless camera (left), occupants can control ordinary household devices by making hand gestures in front of the lens.

The Georgia Tech Aware Home is a laboratory in a conventional-looking house, which opened in May 2000. The array of experiments in the Aware Home is designed to support everyday activities and, more specifically, the cognitive changes that happen with aging. Diminishing short-term memory may be the most noticeable symptom of aging. With memory-aid technologies, it will be possible for people to look back to see if they have added sugar or salt to a recipe, to find where they left their keys, or to see if they took their medicine. Tracking activity by camera is one method, and one that we undergo so often in the public domain that it may eventually become more pervasively acceptable at home. "The playback may be still shots, for example, that are taken when the sensor identifies that a relevant activity has taken place," explains Abowd, "but we don't yet have the full refinement of the sensing activity."

AN AWARE ENVIRONMENT IS ONE THAT KNOWS WHO IS IN THE HOUSE, WHERE THEY ARE, AND PERHAPS WHAT THEY ARE DOING.

"The key is that the user controls the information," explains Rochester's Horwitz. "The information is captured on a computer within the house." How and to whom it is distributed is the consumer's choice.

Motion sensors are the typical way to track a person's activity, but several years ago, Abowd began experimenting with a load sensor (that records pressure caused by a person's weight) in a floor tile to see if it could characterize and then follow a person through the house. While it worked to a degree, it was very difficult to scale it out over the whole house. More recently, he has been experimenting with Radio Frequency Identification (RFID), the technology that is used to track your car and deduct toll road payments. A tag on your shoe sends a signal to the computer through antennas in mats on the floor. Eventually, molecular nanotechnology (MNT) will allow these antennas to be fabricated at the nanoscale and embedded into building materials.

Getting smarter

Oatfield Estates Extended Family Residences in the Portland, Oregon, suburb of Milwaukie is a retirement home proving the use of RFID technology. The system is not as intelligent now as it will be, but it already allows people with cognitive disabilities to live much more independently. Bill Reed and Lydia Lundberg are the founders of Elite-Care residential care facilities (www.elite-care.com) and the owners and developers of Oatfield, which has just opened its sixth 15-person building.

Reed explains some of the system functioning: "Each 'house' is

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INSULATION MANUFACTURED STONE VENEER

hardwired into the central computer, which is a programmable logic controller (PLC), a microprocessor used to automate machinery. We don't have smart gadgets, we have a smart controller. For example, let's say 'Joe' goes into the kitchen. The location-tracking technology is constantly relaying where Joe is, and the motion sensors provide the computer with the information that he is there by himself. The computer already knows that if Joe is alone in the kitchen, it needs to turn off the power to the microwave because Joe is unable to remember that cans should not be put into the microwave." The central controller must be programmed with the facts about Joe's propensity to put cans in the microwave. However, as the system becomes more robust, it will be able to learn resident habits.

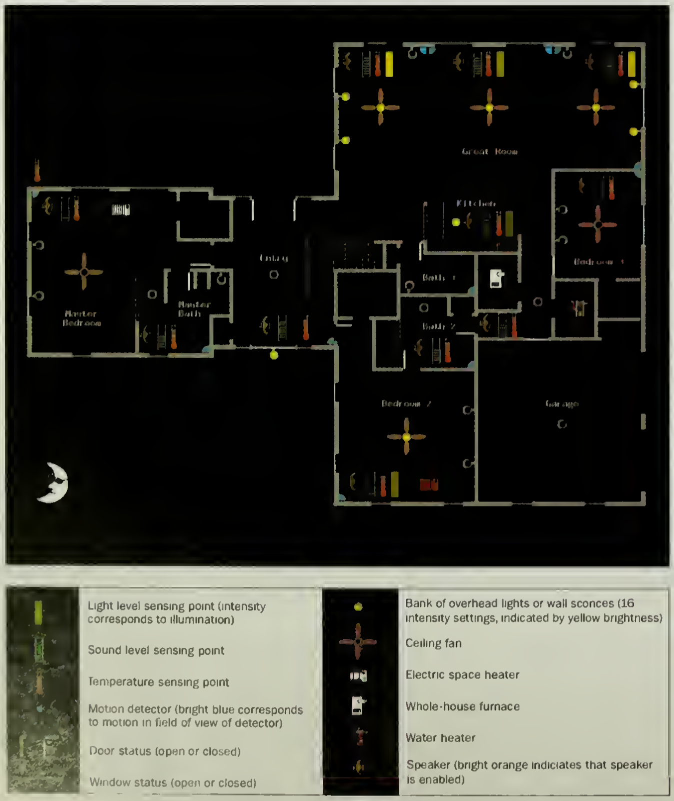
Michael Mozer, professor of Computer Science and Cognitive Science at the University of Colorado in Boulder, outfitted his own home, a 19th-century schoolhouse, with 75 sensors to detect motion, light, sound, temperature, and window and door openings, plus actuators to control heating, lighting, fans, and water heating. The system he and his research students designed controls basic residential comfort systems: HVAC, lighting, and water heater. The research question he set out to answer in the Adaptive House (www.cs.colorado.edu/~mozer/house/) was whether there are significant regularities in a person's behavior that a system can exploit to make the occupant's life more comfortable.

"In most research settings, there is little concern about the invasive nature of the devices. But because I live here, this issue had high priority. On the other hand, we had to do this with readily available materials that were much cruder just six or seven years ago," explained Mozer. "You could do an even less obtrusive installation now, and have much more sensitive and sophisticated sensors."

What makes his system intelligent is that it can learn and adjust actions accordingly. "Over time, the system learns more about you and can pick up subtle patterns in your behavior. The more variables you give the system, the smarter it becomes. It learned that when I come home late at night, I usually stay at home longer the next morning, so on those days, it sets the thermostat to keep the house warm longer in the morning. It learned that I sit at a particular table in the great room to read. After a few times of manually turning the light up when I sat down there, it was trained to do it automatically when the sensors picked up that I was at the table."

THE SYSTEM LEARNS MORE ABOUT YOU AND CAN PICK UP SUBTLE PATTERNS IN YOUR BEHAVIOR. THE MORE VARIABLES YOU GIVE THE SYSTEM, THE SMARTER IT BECOMES.

Systems that can learn will improve on those like Honeywell's Hometronic (content.honeywell.com/uk/Press/hometronic_online.htm) system that can manage your HVAC, lighting, window shades, home appliances, and more, even when you are away. This one and others like it can be programmed to take advantage of periods when utility rates are lower. There is even a way for communications to take place with the utility companies to take advantage of fluctuating pricing tiers. The final responsibility, however, remains with the user, who still has to set up and choose the programs. Systems that learn are supposed to eliminate or significantly reduce that burden. Further, current stand-alone HVAC and security systems, smart appliances, and controls will have seamless communication among


Great Room
Kitchen
Bedroom 1
Entry
Bath 1
Master Bath
Master Bedroom
Bath 2
Bedroom 2
Garage
Light level sensing point (intensity corresponds to illumination)
Sound level sensing point
Temperature sensing point
Motion detector (bright blue corresponds to motion in field of view of detector)
Door status (open or closed)
Window status (open or closed)
Bank of overhead lights or wall sconces (16 intensity settings, indicated by yellow brightness)
Ceiling fan
Electric space heater
Whole-house furnace
Water heater
Speaker (bright orange indicates that speaker is enabled)

The control systems in Michael Mozer's residence (below and left) are based on neural-network reinforcement learning and prediction techniques. Seventy-five sensors provide information about the environmental conditions being monitored—temperature, ambient light levels, sound, motion, door and window openings—and actuators control the furnace, space heaters, water heater, lighting units, and ceiling fans.

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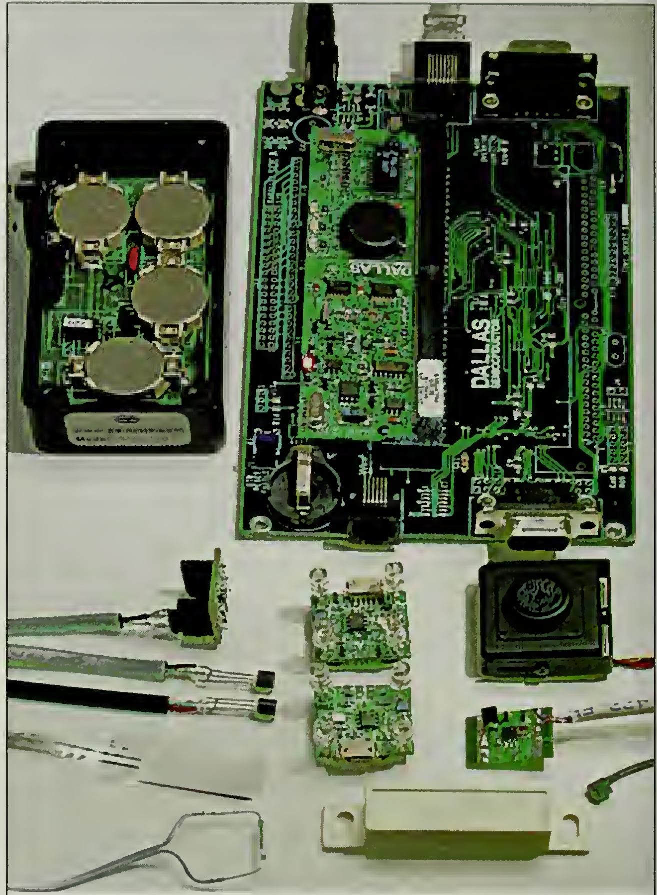
themselves, learn about what the others are doing, and compare new information with what is going on in the environment. The potential for energy and resource management applications seems limitless.

Electrical and computer engineers, scientists, behavior specialists, psychologists, medical researchers, medical doctors, and industry are experimenting with sensing technology, computer algorithms, human behavior, and medical science to sort out the pieces and figure out how all this comes together in a usable integrated system that can be installed in a new or existing house. Architects, with the exception of Kent Larson, director of MIT's PlaceLab (architecture.mit.edu/house_n/web/placelab/livinglaboratory.htm), are absent from the university research centers.

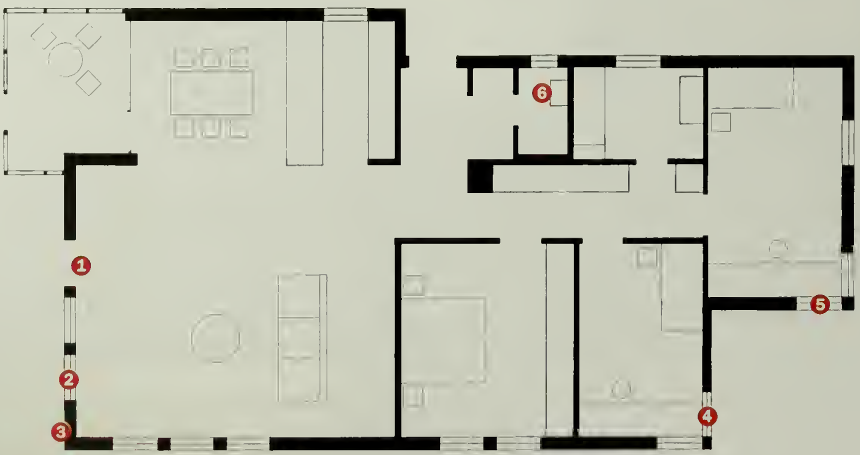
MIT has a network of related initiatives undertaken by partnerships of the Department of Architecture, the Media lab, TIAX (an independent R&D company), and a variety of corporate sponsors. PlaceLab, a smart-living laboratory, is due to open this year. It is a two-bedroom condominium in a residential building outfitted with hundreds of sensors to monitor the environment and activity within it. "The purpose of this lab, which will be inhabited by people going about their daily lives, is to study human behavior to influence design and technology," explains Larson. "No one has ever built a lab to study humans and technology in the context of real life. This is not a demonstration house; it is a laboratory of human behavior to inform, not to demonstrate, design."

EVEN AS WE BECOME MORE USED TO THE IDEA OF PERVASIVE COMPUTING, THE QUESTION FOR ARCHITECTS REMAINS, WHAT DOES IT MEAN FOR BUILDING?

The ambitious research agenda includes proactive health care and monitoring of daily activities, as well as indoor air quality, information technology, appliance design, energy management, and construction. Even as we become more and more used to the idea of pervasive computing, the question for architects remains, What does it mean for building? With this project and a related consortium, the Open Source Building


The PlaceLab, an apartment-scale research facility operated by MIT and TIAX, will test and evaluate new technologies for the home. A microcontroller and light, motion, humidity, CO_2, and barometric pressure sensors will be embedded in upgradable cabinetry.

Hometronic is a home-automation system from Honeywell. The diagram at right shows which functions can be controlled by a single, wall-mounted unit. The system is wireless and uses a multifrequency transmission radio frequency (RF) to regulate heating, monitor energy consumption, and control lights, shutters, curtains, and appliances.



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Alliance (architecture.mit.edu/~kll/OSBA_faq.htm), Larson is teaming up with computer scientists and the technology industry to tap the explosion of creative advances to improve human environments and building technology. Larson and his colleagues have added to the research agenda serious thinking about the application of these technologies to the making and maintaining of buildings.

Returning to the comparison between the automotive and building industries, it is hard to dispute the technological backwardness of the latter. Automobiles and computers are an assembly of components that work together because the industries have developed robust compatible interfaces. Buildings are put together by a range of subspecialties that recoil from crossing the line to others, and yet they need to be interconnected in the final product. Larson explains, "We currently build buildings the way we build the space shuttle: one change and it ripples through the entire system. In the future, we will decouple the systems and standardize the interfaces. We will be able to predict the life cycles of individual components and replace them as necessary. Avoiding unnecessary construction demolition is a significant contribution to sustainability."

IN THE FUTURE, WE'LL DECOUPLE SYSTEMS AND STANDARDIZE INTERFACES. WE'LL PREDICT THE LIFE CYCLES OF COMPONENTS AND REPLACE THEM AS NECESSARY.

Larson's work is likely to yield some answers to the question of how houses may be retrofitted to accept new technology. It is easy to see how devices can be integrated into walls and fixtures. Georgia Tech's Gregory Abowd speculates that progress in wireless and nanotechnology should eventually mean that high-powered sensors and display technology should be allowed to be embedded at will in nearly any material.

The prospects are amazing, and the technology is evolving quickly. Sensors will differentiate between strangers and friends entering your house. Protocols will make sure that your neighbor's controller doesn't interfere with yours. Better interfaces and standards will develop between technologies so that devices will recognize one another the way computer peripherals do now. More complex computer algorithms will process more information, improving the data and making it more useful. Still, for some people, the Big Brother nature of ubiquitous surveillance and continuous collection of personal data will conjure up images of the lip-reading, murderous computer Hal in *2001: A Space Odyssey*. The truth is that the Hal of the future smart house will be a homebody devoted to predicting when the hot-water heater will fail, and doing other mundane tasks. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- ◆ Read the article "Aging Baby Boomers Want Smart Houses for Their Golden Years" using the learning objectives provided.
- ◆ Complete the questions below, then fill in your answers (page 222).
- ◆ Fill out and submit the AIA/CES education reporting form (page 222) or download the form at www.architecturalrecord.com to receive one AIA learning unit.

QUESTIONS

1. Which is an example of integrated systems?
  a. Programmable HVAC
  b. Electronics that communicate with each other
  c. Security and lighting systems
  d. High-speed Internet connections

2. Another term for smart house is which?
  a. Luxury homes
  b. Assisted-living homes
  c. Security houses
  d. Intelligent environment

3. The basic tools of smart houses include all except which?
  a. Sensors
  b. Wiring
  c. Cognitive changes
  d. Interactive communication

4. The purpose of embedded or mounted sensoring devices in smart houses is which?
  a. To collect data
  b. To route data
  c. To analyze data
  d. To send instructions to devices

5. A goal of researchers is to embed tiny computing devices in an environment for which purpose?
  a. To secretly gather information
  b. To spy on the occupants
  c. To be more obtrusive in the environment
  d. To require less effort on the part of the occupants

6. Eventually, information will be gathered and sent by antennas embedded into the building materials using what technology?
  a. Molecular biology
  b. Molecular nanotechnology
  c. Programmable HVAC
  d. High-speed Internet connection

7. The array of experiments in the Georgia Tech Aware Home are designed to support everyday activities and, more specifically, the cognitive changes that happen with aging. An aware environment is one that knows all except which?
  a. What people will do in the house
  b. What people did in the house
  c. Where people are in the house
  d. Who is in the house

8. The term "learn" when used to describe intelligent systems refers to which action?
  a. Compute data
  b. Adjust actions to behavior
  c. Store data
  d. Recall data

9. A major advancement of the automotive industry over the building industry is the result of which?
  a. Robust compatible interfaces
  b. Subspecialties
  c. Decoupled systems
  d. Smart gadgets

10. In the Smart Medical House, the sensors and monitors can keep data on traditional vital signs such as blood pressure and respiration, but will also measure the "new" vital signs such as?
  a. Behavior patterns
  b. Sleep patterns
  c. Exercise
  d. Brain activity

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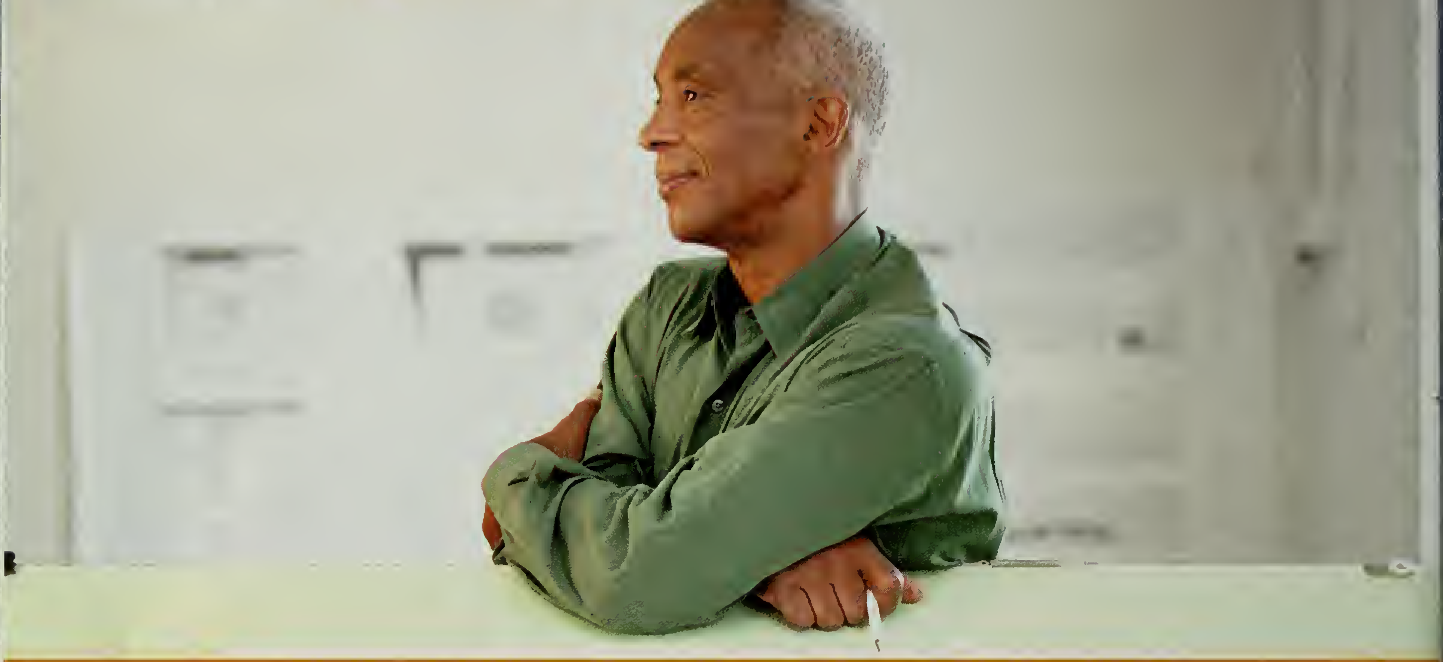

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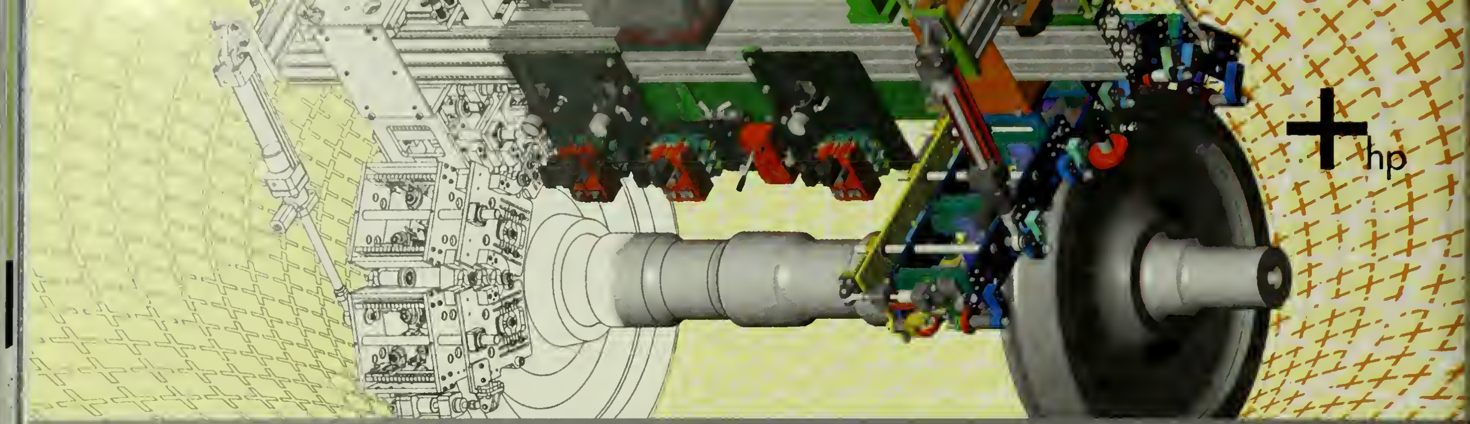

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Tech Briefs Materials: Mini measuring devices can unlock the complex chemical secrets of concrete • Energy: A decentralized model for energy services heats up the power-grid debate

Nanometers? Tiny sensors embedded in concrete will collect physical and chemical data

The National Science Foundation has awarded a grant to Advanced Design Consulting (ADC) of Lansing, New York, to develop tiny passive sensors that can be mixed into concrete to collect data on the physical and chemical characteristics that affect its strength and performance.

The company will build the sensors using a silicon-based nanotechnology known as a microelectromechanical system (MEMS). Each device will consist of four or five MEMS sensors that measure information such as pH, moisture, temperature, and concentrations of chloride, sodium, and potassium ions within the concrete. It will be paired with a radio frequency identification device (RFID) for ID and measurement purposes. The devices would then be encapsulated within a durable, noncorrosive material, similar to a pill, that would allow them to be mixed into concrete bridge decks, walls, or forms. ADC will manufacture the MEMS devices at nearby Cornell University's NanoScale Science and Technology Facility.

By detecting physical and chemical changes in concrete as they occur, engineers can head off rebar corrosion and cracking before they become a critical problem. Steel rebar in concrete is protected against corrosion by the high pH of Portland cement. But deterioration is kick-started when deicing salts penetrate concrete, or when carbon dioxide permeates through concrete's pores and combines with the lime in cement to create calcium carbonate. Both of these processes upset the pH balance of the mix, which makes the steel vulnerable to decay and compromises concrete's long-term compressive strength. "These devices will provide critical data for evaluating concrete performance from its freshly mixed stage to its casting, through the concrete's service life to its period of deterioration and repair," says Eric Johnson, vice president of research at ADC.

The company also aims to displace shopworn practices in construction. "We want to get rid of the slump test and the cylinder test," says Johnson, referring to two long-used, low-tech physical methods to predict performance before—or while—concrete is poured, not during its service life.

Researchers have previously developed moisture sensors for concrete, but they have limitations when embedded in the material, says Alex Deyhim, president of ADC. Most sensors need external power, for instance, which increases their size and shortens their life span.

These mini measuring devices need no external power source—they're powered by radio waves.

Within the first six months of the grant period, ADC will demonstrate that the sensors can be manufactured and data collected from them without an external power source. The sensors will be in "off" mode when buried in the concrete, until a handheld monitor emitting radio waves passes over them—then they will "kick on," take measurements, and reradiate the information back to the monitor. "The low cost and ability to send real-time data will make this system particularly useful," says Deyhim. The devices could be mixed randomly within a road deck or form during a pour, says Johnson, but for easier data collection, they would likely be placed along a linear or known distribution pattern (parallel to rebar, for instance).

ADC's work adds to a growing body of nondestructive inspection and measurement technologies in construction, which assess the condition of in-place materials without the need for collecting cores or samples that break the material apart. Reinforced-concrete bridge decks will serve as the first case studies for evaluating the viability of the MEMS sensors; in the future, ADC expects tiny sensors of all stripes to be viable for buildings, roads, and other types of infrastructure. Good things, it seems, will come in small packages. *Deborah Snoonian, P.E.*

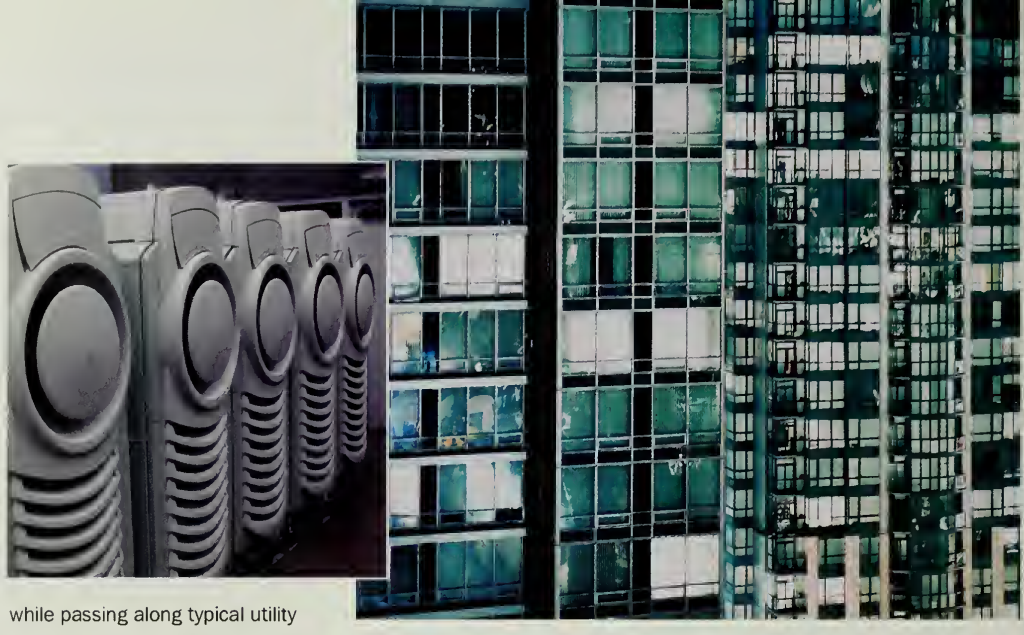
PHOTOGRAPHY: COURTESY ADVANCED DESIGN CONSU

Companies can build a power plant for free right in your backyard ... if the price is right

Rolling blackouts in California. The Northeast Blackout of 2003. Incentives and tax rebates for sustainable-energy initiatives. These wake-up calls have cast attention not just on renewable-energy sources, but also alternative delivery strategies, such as distributed power generation (DG), where small-scale power plants, typically powered by natural gas, are located at or near the buildings they serve. Though attractive in the abstract, the high cost of constructing DG plants, and the challenges of operating and maintaining them, have sent potential customers running for cover.

A new business model for energy delivery might reverse the trend, however. Several providers now offer to build and operate DG plants at no cost when facility owners sign a long-term service contract. Companies offering what's been termed "DG-for-free" include RealEnergy (www.realenergy.com), DG Energy Solutions (www.dg-energy.com), OfficePower (www.officepowerllc.com), and Hess Microgen (www.hessmicrogen.com). Not surprisingly, the coastal areas of the U.S., where energy costs are highest, have driven the market for this service.

Typically, a DG-for-free firm will offer an owner a contract to supply power and heat to a facility (either a single building or group of buildings) at a guaranteed 6 to 9 percent discount off current and future energy prices. In exchange for a 10- to 20-year supply contract, the DG firm handles design, permits, construction, operation, and maintenance for the plant. To determine the feasibility of installing DG-for-free, companies usually offer to analyze a building's power



On-site power plants with natural-gas-powered turbines (left) give juice to single buildings or multibuilding facilities, such as apartment complexes.

needs and systems (whether new or existing) at no charge. It's a bit like getting a free mobile phone when signing up for a two-year calling plan, which itself evolved from Gillette's pioneering profit strategy: Give away the razor, make money on the blades.

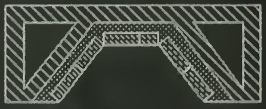
Typically, DG-for-free is not offered as stand-alone, off-the-grid power. For the most part, these services can supply from 40 to 75 percent of a building's energy needs, with the remainder and peak loads still covered by a local utility, or the facility's own boilers or steam services.

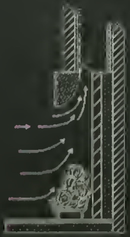
For owners, the economic benefits of DG-for-free seem too good to turn down at first blush. Those who occupy their own buildings can bolster their bottom lines by saving energy, or invest these savings elsewhere. Owners of commercial buildings could pocket extra profit while passing along typical utility rates to tenants. In the wake of the blackouts and 9/11, decentralized power gained sway as a safer, more sustainable option for power generation in the long term than linking to an already overburdened, vulnerable grid.

Despite its inherent benefits, several technical and logistical challenges remain hurdles to its widespread adoption, say energy experts. What provisions for backup power exist, for instance, if a DG plant goes down? Does the plant create new, hidden operating costs, like greater water consumption, or does it trigger the need for additional emissions permits? Does the plant's installation require new, and perhaps costly, fire-code upgrades? Will a DG plant raise insurance rates if fuel is stored on-site? Will power quality be as reliable as with utilities, and how would providers handle potential damages caused by power spikes—say, if a tenant company loses critical computer data during such an event?

Also, because DG-for-free companies aren't regulated like public utilities, customers of their services may relinquish many of the legal supports and protections they're normally entitled to when using traditional utility companies. Owners need to weigh those risks carefully when considering DG-for-free, especially if unforeseen events like an extended loss of service or damage caused by a surge, fire, or other accident could bring their operations to their knees.

Service providers are working to address these challenges, though, and the life-cycle savings DG-for-free offers makes it worth a look for new construction or buildings undergoing system upgrades. In time, these nimble companies will be able to beat the utilities at their own game. *Lindsay Audin/D.S.*





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Impact-Resistant Systems:

Windows and doors take the coast by storm.

It has been a decade. Still, we are talking about Hurricane Andrew. Andrew, upgraded last month by federal researchers from a Class 4 to a Class 5 storm, was the costliest natural disaster in U.S. history. In the past century, only two other hurricanes of similar magnitude have struck the U.S. mainland: Camille in 1969, the unnamed storm that hit the Florida Keys in 1935.

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Impact-Resistant Systems: Windows and doors take the coast by storm.** To earn one AIA/CES Learning Unit including one hour of health safety welfare credit, answer the questions on page 191, then follow the reporting instructions on page 226 or use the Continuing Education self report form located at *architecturalrecord.com.*

LEARNING OBJECTIVES

At the end of this article you will be able to:

- *Understand the codes that apply to hurricane and other severe weather regions*
- *Identify the features and benefits of a window system compared to shutters*
- *Know how to correctly select and specify impact-resistant window & door systems*

Andrew packed winds of 165 mph and came within 20 miles of a direct strike on downtown Miami. It was directly responsible for $26.5 billion in damage. More than 135,000 single-family homes were destroyed or damaged; 160,000 people were left homeless.

Subsequent analysis yielded the observation that up to a quarter of the losses attributed to Andrew were attributable to construction that failed to meet codes, poor enforcement of codes, and deficiencies in the codes themselves.

In the 10 years since Andrew, building codes in Florida, Texas, the Carolinas and other coastal states have undergone significant overhauls, many of them focused on vulnerable window openings.

Windows and doors were universally found to be the weakest building link, and their failure has been shown to lead to a domino effect that ends in catastrophic losses during major storms.

The highest priority amendment for all retrofits and new construction, according to code officials from Florida to New York, are impact-resistant windows and doors.

This continuing education section is intended to familiarize readers with the new code demands and details of a new generation of impact-resistant glass products with which to meet the new codes.

Florida Led the Change

Florida recently implemented the nation's first statewide building code. The most dramatic change: the new Florida Uniform Building Code requires approved impact-resistant glazing in windows and doors (or other protection devices).

Just a few months later, the Falls Church, Va.-based International Code Council, a body created in 1994 by officials of Building Officials and Code Officials International, Inc. (BOCA), International Conference of Building Officials (ICBO), and the Southern Building Code Congress International (SBCCI), developers of the three model codes used throughout the U.S., issued a similar mandate: windows and doors would be required to be assembled using impact-resistant glazing or shutter systems to lessen the hurricane threat.

Fourteen Texas counties also have adopted the stricter codes, and they are expected to be implemented statewide by the end of the year.

The strengthened codes are intended to improve construction techniques in order to prevent losses during natural disasters.

The new impact resistant glass, developed specifically for the Southeast—the region of the U.S. most vulnerable to hurricanes—has recently become, or soon will become, a dictate of local codes in coastal regions from Texas to New York. Manufacturers are finding architects specifying it in Kansas, Iowa and other Plains states to help combat tornado disasters.

The Case for Impact-Resistant Glass

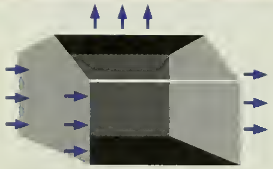
Hurricane-force winds create tremendous pressures on a building: a 140-mph wind (a hurricane accompanied by wind of this speed would be classified a Class 4 Saffir storm), generating 80 pound per sq ft (psf) of wind load on a 4-x-8-ft window, translates into a total load of 2,560 pounds of pressure on the window. No annealed glass pane can withstand that kind of pressure.

Although hurricane winds, themselves, exert tremendous damaging pressure, a large percentage of hurricane damage is not from the wind itself, but from airborne debris that, in severe cases can include entire roofs, tree limbs, etc.

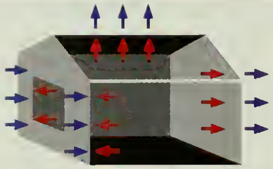
When windows fail, as a result of either wind pressure or breakage by flying debris, there is a near-immediate escalation of pressure within the structure as pressurized outside air rushes to find a low-pressure pocket and expand. The action causes tremendous lift on the roof, frequently of sufficient force to lift the roof from the house. Once exposed, interior walls and ceilings, not designed to withstand such forces, are overturned.

Building failure during Andrew, according to a 1996 study by The Johns Hopkins University, was primarily a result of negative pressure and/or induced internal pressure overloading the building envelope. Entry doors, especially French doors (and wood and metal double doors) were prone to failure. Windows, especially sliding glass doors were susceptible to failure from wind pressure and the impact of debris. (In most cases frame systems were found intact, but only because the glazing had already failed.)

WHY IMPACT-RESISTANT GLASS IS SO IMPORTANT



FULLY ENCLOSED BUILDING
.090" gauge and .100" gauge interlayer laminated glass windows and doors are tough. Their durable interlayer can withstand tremendous blows from flying debris, thus reducing the likelihood of an impact fracture. With reduced inward rush of air on the windward wall, the likelihood of a structure attaining a volatile internal pressure is reduced



OPENING IN WINDWARD WALL
In the midst of a high-winded storm, structural openings like failed doors or windows compromise a home's structure When pressurized outside air rushes to find low-pressure pockets of air and expand, the force may be enough to physically blow off a roof

When window and door loss occurred, interior damage from wind and rain intrusion was substantial. Even where structural systems were intact, many homes were uninhabitable for long periods of time because of water damage to interiors. Nearly two-thirds of all homes damaged by Andrew suffered damage to windows. The Johns Hopkins study suggests that an opening of only five percent on the windward side of a structure will allow full pressurization of the interior, exerting uplift pressure on the roof and lateral pressure against interior walls.

Storm shutters—from sheets of plywood to electric retractable systems, were shown to reduce the impact of the storm, by 30-to-50-percent, but shutters are not guaranteed to protect windows from hurricane-force winds. During Andrew, metal gratings and shutters were severely bent, even penetrated by wind-born debris.

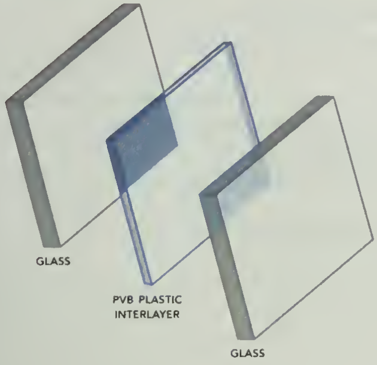
The use of storm shutters to protect the windows and doors requires a homeowner to physically activate the retractable systems or to engage the non-mechanical systems. One of the benefits of using an impact-resistant glazed system vs. a shutter system is the "no-worry, always-ready-to-protect" feature. Impact-resistant windows offer other advantages:

1. 24-hour protection, seven days a week. Whether home or away, the window is protecting the home. Shutters need to be closed or added before the storm.
2. If you are out of town, it may cost money for the homeowner to contract someone to put shutters up – or every single time the homeowner leaves during the storm season, the shutters will need to be put up.
3. Panel shutters or plywood take up valuable storage space when not in use.
4. Many roll-down shutters operate on electricity. If the power goes out, shutters may not be able to be put in place.
5. No unsightly shutter components are visible on the home or business.
6. If the homeowner puts up shutters or boards, when away from the home, it is evident the homeowner is absent. Security issues may arise as a result.
7. Many shutters can be labor intensive, and therefore costly, to install
8. A family remaining in the house during a storm, is not forced to be in a dark, enclosed, shuttered environment.
9. If the window were to be broken, glass tends to adhere to the interlayer. This reduces the potential for serious injury.

Often, the effect of a hurricane is not unlike an explosion. Nearly three-quarters of the injuries from the 1995 bombing of Oklahoma City's Alfred P. Murrah Building were caused by flying glass.

Since Oklahoma City, glass manufacturers and structural engineers have worked to develop a new generation of heat-hardened and chemically treated glass, experimenting with new interlayers and completely new impact-resistant window systems, including mullions, frames and anchors.

The new impact-resistant residential glass, similar to car windshields and aircraft windows, is now making its way to the retail marketplace. Typically, the new impact-resistant laminates contain at least a .090" gauge layer of polyvinyl butyral (PVB) or a similar type interlayer sandwiched between two sheets of at minimum $^{1}/_{8}$-in annealed glass.



The "glass sandwich" will break upon a severe impact, but it will not allow the flying object to enter through the glass. The interlayer can withstand tremendous blows from flying debris, and will even resist the impact of a driven golf ball (Tiger drives the ball at about 140 mph). If the glass is broken, the laminate interlayer is designed to remain intact. The adhesion between the interlayer and the lites of glass keeps the broken fragments relatively intact, thus maintaining the internal pressures.

Window manufacturers have engineered systems to meet local codes still evolving in Florida, Georgia, Texas, the Carolinas, New York and other eastern states. These new protective opening systems in many cases include not only impact-resistant glass, but also corrosion resistant hardware.

Glass Alone Does Not a Defense Make

"Many different factors influence the required design load," says the testing and certification coordinator for a major manufacturer, including the wind zone, the mean roof height, whether units are glazed within three feet of the corners of the building, the size and quantity of doors and windows being installed, etc. Please refer to additional online material for greater detail and charts.

Architects must determine design pressure needed for each window in a building, then check sizes and configurations tested by the manufacturer to ensure that the products meet the expected design pressures.

The adequacy of the engineering design and method of attachment of windows and sliding transparent doors of all types is critical to the performance of window and door systems for applications in areas subject to wind exposure. Wind loads should be adequately transferred to the supporting structure.

Some multiple wide/high combinations will require a structural mull or can be framed into a separate opening. Designers must note differences in performance levels of various glass types and select the glass make-up that meets the required pressure.

Designers should note that heat-or-chemically strengthened glass will be required for picture units or large fixed lites in order to achieve passing performance levels.

"Do not make the mistake of believing that because you order a window or door with laminated glass, that it is necessarily impact-resistant. In order for a product to be certified as impact-resistant, it must be tested in a complete window/door system. The design of the overall sash/frame greatly affects the outcome of the testing," says the source.

Architects should look for laminated-glass systems engineered specifically to comply with coastal building codes. New code-compliant window systems feature added mass to carry the heavier weight of a laminated glass sash. Foam-filled-center weather stripping creates airtight seals. Frame corners are reinforced with structural corner keys and injected with silicone for added durability and resistance to water infiltration.

In tests conducted in accordance with ASTM E-1886 and ASTM E-1996, Metro-Dade County Protocol PA201 and PA203, SSTD 12-97 and TDI 1-98, some new laminated window systems have been shown to withstand winds up to 205 mph winds and 65 mph driving rains. In addition, laminated glass products provide nearly 100% resistance to harmful UV rays. The added protection of the interlayer gives the homeowner peace of mind in knowing that their draperies, floor coverings, furniture, etc. will not fade.

Are My Design Options Limited?

Over the past two decades, populations along high-risk coastlines have increased significantly. The population of Florida, alone, has increased by more than 50 percent since 1988.

The Oceanic and Atmospheric Administration estimates that by the year 2010, the population of Southeastern coastal areas and other hurricane-prone areas of the country (18 states are regarded as "hurricane-prone") will have grown to 73 million people.

At the same time, Hurricane Andrew redefined the way the public and public agencies view the risk of hurricane damage to homes. The size of losses from Andrew proved that hurricane damage estimates have, historically, been seriously underestimated.

In the wake of Andrew, unprecedented code changes occurred. Those code changes, in concert with technological leaps in glass design, pushed forward-looking manufacturers to essentially recreate their entire product lines and seek certification of new hurricane-resistant systems for a residential market in which homes were growing larger and more grandiose. Some manufacturers retrofitted existing product lines and offer a limited range of certified impact-resistant products; others have created new code-compliant lines that include a full range of window types and sizes in impact-resistant glass.

The result is a new generation of window products that meet virtually all the design options available with non-laminated windows.

"There are now vast product options available in impact-resistant product lines, with a tremendous variety of custom shapes, sizes, trim and hardware options," says a manufacturer's representative. "The bottom line: builders will be able, in these markets, to construct virtually any look they want."

A common characteristic to be aware of, however, is that while annealed-glass laminates are virtually distortion-free, heat-strengthened glass will exhibit some distortion due to the process of heating the glass to achieve the benefits of added strength.

It should also be noted that monolithic (non-insulated) glass, although not providing the same insulating value of a standard dual-pane insulated product, can be manufactured with a gray or bronze tint to provide added benefits for solar heat gain reduction or to meet the well-known "turtle code" now applicable in many coastal areas.

With many state and/or local codes now requiring compliance with the IECC (International Energy Code Congress) as well as the windborne debris requirements, manufacturers have scrambled to come up with a product that gives the consumer the best of both worlds.

However, this was easier said than done. In order to meet the stringent energy code requirements set forth in many coastal regions such as North and South Carolina, an insulated product is required. With the initial "push" to manufacture an impact-resistant system for the Florida market, there wasn't a concern to provide product that met stringent insulating values. Thus, window and door manufacturers focused on the monolithic (single-pane) laminated product to meet the impact-resistant codes. This product works for Florida (where energy codes are not enforced at this time), but it does not meet the codes mandated in some other coastal areas.

The use of an approved shutter system along with an insulated window or door product meeting the design pressures required for the coastal areas does meet both the energy and windborne debris codes.

Knowing this is not always the choice of a homeowner, window and door manufacturers have worked hard to develop an impact-resistant insulated glazing system to comply with both of these codes.

Because of the larger sized units requiring thicker glass to meet the impact and cyclic tests, it was a challenge to design a glazing shelf sufficient to handle thicker laminate, an insulated glass spacer and yet another 1/8" lite of annealed or tempered glass. There is also a minimum air space required to be able to obtain the optimal energy performance; therefore manufacturers are required to redesign an existing impact-resistant system to be able to gain all of the benefits.

Another constraint was getting the insulated laminated product to withstand the intense pressure cycles required to meet the codes. The addition of a glass spacer and another lite of glass typically causes the glazing unit to "roll" while under heavy loads. This makes the use of a structural silicone critical in most applications.

As more and more jurisdictions mandate the energy requirements along with the windborne debris requirements, the need for low-e insulated impact-resistant glazing has become a key issue.

Assessing Code Compliance

The Miami-Dade protocol (PA 201, PA 203), considered the most stringent in the nation, has become the optimal standard for testing of impact-resistant glazing systems. Window systems are subjected to an impact of a nine-pound 2X4 projected at a speed of 50-ft-per-second, and are then subjected to 9,000 positive/negative pressure cycles.

This testing meets the requirements of SSTD 12-97, TDI 1-98, ASTM E1886 and ASTM E1996.

The IBC references ASTM 1886 and ASTM E 1996. BOCA and UBC fall under the IBC.

The IBC references the ASCE 7-98 standard to determine wind loads, thereby requiring a combination +/- dual-performance grade. The positive pressure required is typically lower than the negative pressure. The reason for the positive pressure being lower than the negative pressure is due mainly to the characteristics of dynamic air flow and the effect it has around a building or structure. The water performance is only required to meet the positive pressure requirement.

Certified new laminates not only meet or exceed the toughest code requirements for hurricane protection, but also offer these additional benefits:

- **Safety:** laminated glass resists penetration from accidental impact, and, if broken, glass fragments adhere to the interlayer, thereby reducing the danger of serious injury. Certified products meet CPSC, CFR 1201 and ANSI Z97.1 safety glazing standards.
- **Sound control**: the new laminates are effective in controlling sound transmission.
- **UV protection:** laminates screen out 99 percent (up to 380 nanometers) of the sun's most damaging rays, reducing glare, fading of carpets, draperies and furnishings.
- **Security**: they protect against forced entry and resist repeated blows from hammers or thrown rocks and meet the ASTM F-1223 (Class 1) forced entry standard.

Code-approved window systems can be less expensive to install than windows protected by shutter systems—about 17 percent less expensive than windows with accordian shutters; up to 50 percent less expensive than windows with roll-up shutters.

A study conducted by Orlando, Fla.-based Associated Cost Engineers compared laminate windows with regular wood-shuttered windows. It found that a system of laminated glass (for a home in the $100,000-$120,000 range) cost about $12,500 for materials and labor. Regular glass windows with roll-up shutters cost more than $25,000, according to the study, and regular glass windows with accordian shutters cost nearly $16,000. (The study was based on a theoretical, code-approved model home in Dade County with 1,632 sq. ft. of living area.)

The Threat Is Growing

The risk of property damage and loss in hazard-prone areas grows along with population, and as noted earlier, coastal populations are on the rise.

Florida, the state most at risk from hurricanes, accounts for the largest share of insured coastal property exposure. From 1988 to 1993, the value of insured property in Florida went from $565.8 billion to $871.7 billion and at the current rate of growth will soon surpass $1 trillion, according to the 1996 John Hopkins study.

The physical properties of impact-resistant glass with a .090-in PVB interlayer are as follows:

Refractive Index: 1.48
Visible light transmittance, clear: 0.88
Shading coefficient, clear: 0.88
UV Screening, up to 380 nm: 0.99
Solar transmittance: 0.69
Solar heat gain coefficient: 0.75
Relative heat gain: 189

While one does not usually think of New York as a state exposed to hurricanes, Long Island is a highly exposed region. Coastal property exposure for New York increased from $301.7 billion to $595.6 billion between 1988 and 1993.

Concurrent with population increases in hazard-prone areas, there is evidence that the future will bring more intense hurricanes (Saffir-Simpson Categories 3-5) In the wake of Andrew, researcher and forecaster William Gray said in a Time magazine interview "We're going to see hurricane damage like we've never seen it before."

Indeed, there is strong evidence that intense hurricane formation is cyclic, and that we are entering a high-incidence swing of that cycle.

Climate studies, Gray says, indicate we are returning to a period of greater African rainfall, which may cause a return to the more active hurricane seasons typical of the 1940s and 1950s, when 10 major hurricanes struck the continental U.S.

In addition to a greater number of intense Atlantic hurricanes as a result of the rainfall cycle, there is growing concern that global climate may be changing in ways that could increase hurricane frequency and intensity.

We may, however, be able to reduce the level of damage resulting from major storms. Architects now have the tools to combat hurricane-force winds, and they need not sacrifice warmth and clarity of vision to do so.

Today's wind-borne debris resistant systems offer security and attractiveness. Now, you can have both. ■

Click for Additional Required Reading

As part of this CES learning activity, you are required to read some additional material. Some of the test questions below will relate to the additional reading material. Go to **archrecord.construction.com/resources/conteduc/** to access the material online. To obtain a faxed copy, contact Corinne Liske at 800-222-2995 ext. 3716 or cliske@weathershield.com.

Learning Objectives

At the end of this article you will be able to:

- *Understand the codes that apply to hurricane and other severe weather regions*
- *Identify the features and benefits of a window system compared to shutters*
- *Know how to correctly select and specify impact-resistant window & door systems*

Instructions

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 226. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website—*architecturalrecord.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

Questions

Q: 1. Analysis of Hurricane Andrew yield that up to how much of the losses were attributable to inadequate construction codes.
A: a. 1/4
b. 1/3
c. 1/2
d. 2/3

Q: 2. In studies, what was shown to be the weakest building link in a hurricane:
A: a. Windows and doors
b. Roof structure
c. Interior walls

Q: 3. A large percentage of hurricane damage is not from the wind itself, but from
A: a. Driving rain
b. Air pressure
c. Windborne debris

Q: 4. The action causes tremendous lift on the roof is:
A: a. Pressurized outside air rushing in to find a low-pressure pocket and expanding
b. High winds blowing up and through building
c. Pressurized inside air rushing out to find a low-pressure pocket and accelerating

Q: 5. Even an opening of only ___ percent on the windward side of a structure will allow full pressurization of the interior, exerting uplift pressure on the roof and lateral pressure against interior walls.
A: a. 5 %
b. 10 %
c. 15 %

Q: 6. The new impact-resistant laminates contain a .090" layer of _____ sandwiched between two sheets of at minimum 1/8 in. annealed glass.
A: a. Polyisocyanuarate
b. Polyurethane
c. Polyvinyl butyral
d. Polycarbonates

Q: 7. The sash/frame must be included in the testing of a product to be certified as an impact-resistant window door system.
A: a. True
b. False

Q: 8. Code approved window systems can be about ____% less expensive than windows with accordian shutters.
A: a. 12
b. 17
c. 27
d. 32

Q: 9. Category 4 hurricanes can cause "extreme" damage with winds at:
A: a. 111 – 130 mph
b. 131 – 155 mph
c. Greater than 155 mph

Q: 10. When determining exposure categories, shorelines in hurricane prone regions are included in which category:
A: a. Exposure A
b. Exposure B
c. Exposure C
d. Exposure D

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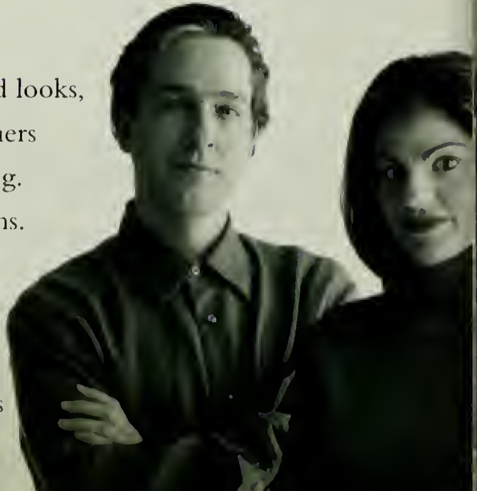

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WHIRLPOOL CORPORATION PRESENTS

The Greening of "White Goods":

Environmental considerations when specifying appliances

ONTINUING EDUCATION

Use the learning objectives below to focus study as you read **The Greening of "White Goods": Environmental considerations hen specifying appliances.** To earn one AIA/CES earning Unit, answer the questions on page 197, ien follow the reporting instructions on page 224 r go to the Continuing Education section on *rchrecord.construction.com* and follow the eporting instructions.

EARNING OBJECTIVES

fter reading this article, you should be able to:

Describe the contribution of energy-efficient appliances in the goal of sustainable architecture.

Explain the driving forces behind the development of energy-efficient appliances.

Compare appliances using the life-cycle cost formula.

Recent indicators suggest that energy-efficiency is now a preference for consumers when buying appliances. This major shift in attitude may fluctuate as the availability and cost of energy resources do. It's more likely, though, that this reflects a much deeper cultural understanding of the need and benefits of conservation in all aspects of home living. And, too, it encourages manufacturers of appliances and architects, interior designers, and homebuilders who specify appliances to consider the implications of sustainable architecture.

Look at the results of two recent studies. Primen, an energy market intelligence company in Madison, Wis., surveyed 500 households in 2001 and found that energy-efficiency replaced price as the top appliance-purchasing consideration in all regions of the U.S.

A recent survey of new homebuyers by the Cahners Residential Group found 89 percent willing to spend additional money on energy efficiency and other environmentally friendly upgrades. Of those surveyed, 28 percent indicated a willingness to spend an extra $2,500 and 27 percent up to an extra $5,000. Even more surprising, energy-efficiency was rated by 87 percent as the most important upgrade to make.

For any environmentally concerned prognosticator this consumer trend is extremely heartening. The potential energy-savings are huge. Think of it this way. The 1999 Census counted 120 million households; by 2010, the Census predicts 135 million. The Association of Home Appliance Manufacturers (AHAM) suggests that each household has a refrigerator and range. More than 90 percent own clothes washers and dryers. Many have dishwashers, microwave ovens, freezers, and dehumidifiers. The typical life of these appliances can range from 10 to 18 years, so replacements are staggered. So, obviously, energy savings vary with each new appliance, but it's astounding to consider that the annual operating costs of refrigerators built to meet current Department of Energy (DOE) standards are 60 percent less than a unit produced in 1980. Consider also the resource potential that could be tapped in recycling. Discarded appliances are second only to used automobiles as a source of recycled metals, particularly steel. These figures represent a tremendous amount of embodied resources that otherwise would wind up in landfill. AHAM reports that U.S. manufacturers ship nearly 54 million major home appliances annually.

The concept of "green" architecture conjures up wide-flung ideas such as daylighting, passive solar designs, natural ventilation systems, geothermal heat pumps, green roofs, and much more. Solutions in the appliance category may be less daunting. As defined in 1987 by the United Nations World Commission on Environment and Development, sustainable design "meets the needs of the present without compromising the ability of future generations to meet their own needs." A close examination of the goals of sustainable architecture suggests that the pursuit of energy-efficient appliances can make a large contribution.

Four key areas of sustainability, as relates to appliances, are:

- Energy consumption — not only how much energy a product may use, but also the energy consumed to produce it.
- Recycled content — recycled in terms of how much recycled material goes into the product and how much is taken out.
- Life-cycle costs — what is the cost/value relationship? Is the extra energy or environmental savings really worth a sustainability driven specification and higher initial cost for building components?
- Quality of life — does the product enhance the quality of life beyond energy savings?

Energy Consumption

A major force behind development and availability of energy-efficient appliances is the federal government's ENERGY STAR® program. In 1992, the Environmental Protection Agency (EPA) introduced ENERGY STAR as a voluntary labeling program designed to identify and promote energy-efficient products in an effort to reduce greenhouse gas emissions. Computers and monitors were the first labeled products, followed by additional office equipment products and residential heating and cooling equipment. In 1996, EPA partnered with DOE to promote the ENERGY STAR label on major appliances, lighting equipment, home electronics, and more. ENERGY STAR consists of 8,000 private and public sector organizations and guides more than 40 product categories.

It should be noted that government standards have also promoted the development of energy efficient appliances. In 1987, Congress passed the National Conservation Act, under which DOE issued the first efficiency standards for 12 types of appliances in 1988 and 1990. More recently new federal minimum efficiency standards were issued for refrigerators in 2001. And in 2004, clothes washers will have to meet new federal minimum efficiency standards. Participants in the ENERGY STAR program have, however, designed appliances that surpass these efficiency standards. For example, an ENERGY STAR rated appliance reported meeting the following qualifications:

- Clothes washers — 50 percent more efficient than minimum federal government standards and use 30 percent to 50 percent less water per load and offer better water extraction, which means less dryer time.
- Dishwashers — at least 25 percent more efficient than minimum federal government standards. They have washing systems that eliminate pre-rinsing, and less energy is used to heat the water that cleans the dishes.
- Central air conditioners — approximately 20 percent more efficient than minimum federal efficiency standards.

Recycled Content

Major home appliances, often referred to collectively as "white goods," have long lives, typically 10 to 18 years. When the useful life as an appliance is over, the materials are still valuable, particularly the steel for scrap. Steel is the most abundant recyclable component in appliances. Other recyclable materials include metals like aluminum, copper, plastics, and chlorofluorocarbon (CFC) refrigerants.

Scrap steel can be processed and repeatedly remelted to manufacture new products. According to the Institute of Scrap Recycling Industries, Inc., more than half of all the steel produced in the U.S. today is made from recycled material. The same steel products can be manufactured from iron ore, recycled scrap, or a combination or both, and provide identical performance. Once again consider the numbers. The Steel Recycling Institute reported 45 million white goods recycled or disposed of in 1996. At that time, the steel from major home appliances made up about 10 percent of the total recycled steel scrap.

It's also interesting to note that chlorofluorocarbons (CFCs) are a recyclable material of obsolete refrigerators and freezers. Although the Clean Air Act Amendments of 1990 ban the manufacture of CFCs after 1994, they can still be legally recovered and used to maintain and repair existing refrigerators, freezers, and air conditioners.

"Green Design" Considerations

Following is a list of topics to inquire about as you begin evaluating and comparing appliance specifications for sustainability:

Water Usage
Energy Usage
Use of Recycled Content
Fossil Fuel Emissions
Use of Chemicals
Post-Use Recycling
Compliance beyond ENERGY STAR minimum standards
Corporate commitment to sustainability

Life-Cycle Costs

Evaluating the life-cycle cost when specifying a building material is not a new exercise for the designer. The upfront costs of using a certain product chosen for the purposes of energy-efficiency are amortized against the long-term energy savings. It has been more difficult for consumers to grasp that concept in a buy now, use now society. The shortsighted consumer might say, "I want a 100 percent return on my investment in an environmental product upgrade in five years (the average number of years a homeowner occupies a house)." This consumer might balk at paying anything extra for an appliance for less than a five-year payback on the upgrade. A more holistic view would be based on the appliance's projected life, which may be as long as 15 years. So then the question might be, "What is the best product choice to maximize the return on investment vs. initial cost, not only in monetary terms but also in sustainability achieved?"

Lifecycle cost formula:

$$\text{Sustainability Upgrade Cost} \leq \text{Energy-Savings Cost Over Lifespan of the Product} + \text{Value of Environmental Stewardship Through Sustainable Design}$$

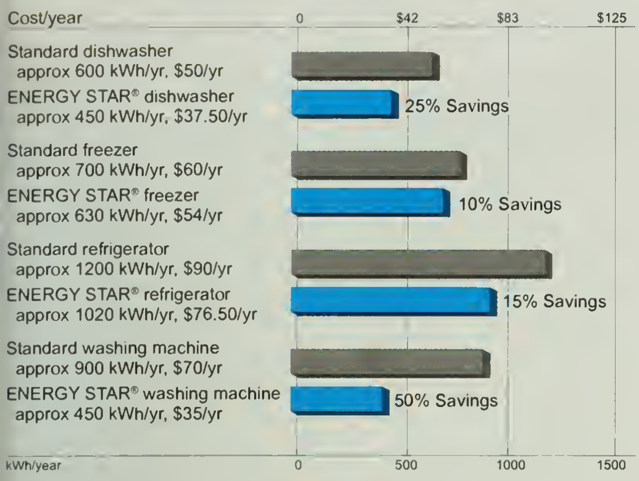
Perhaps, though, the message is getting through. As early as 1992, *Better Homes and Gardens* published the following advice: "Add up the figures and it's shocking. The sticker price is only a small part of the cost of any appliance. The energy you use — electricity, natural gas, or heating oil — over the life an appliance often costs double or triple the retail price. And wasted energy creates needless pollution: smog, greenhouse gases, acid rain, and nuclear waste. By adding energy efficiency to the checklist of features to shop for on your next appliance purchase, you can save money and help clean up the environment. A house with the most efficient appliances could save up to $5,000 over 20 years."

Quality of Life

Look beyond just energy-efficiency and consider quality of life issues. A few issues to consider are:

- Does a product help homebuyers increase productivity?
- Does a product increase comfort — for example, air quality, or noise reduction?
- Can a product address the temporal and physical limitations that are becoming more important to aging adults through universal design?
- Does a product recapture more time to do other things, including the enjoyment of the natural environment?

Energy Consumption



kWh= Kilowatt hours Source. Dept. of Energy and ENERGY STAR®

ENERGY STAR® savings based on minimum federal government standards

Consider the thoughts of architect Dennis Wedlick in his foreword to the book on eco-houses entitled *Hot Dirt Cool Straw*. Over the last four decades, designers and builders have experimented, and succeeded, in producing excellent examples of new methods of construction that could be classified as environmentally friendly. Today, we realize that to be truly sustainable, it is not enough to imagine methods of minimizing damage to the environment; instead the results must have a positive impact on it. In other words, the construction of a new house needs to provide a net improvement for the environment, to offer more than if no construction took place. The repurposing of the time saved using more efficient appliances in a higher and better use can be instrumental in achieving this net improvement.

Designing Energy-Efficient Appliances

New technologies to meet more stringent efficiency standards have emerged and will continue to do so, although bringing radically new developments products to the market is no simple task. In 1993, for example, a consortium of 24 utilities challenged manufacturers to design a refrigerator that would be as much as 50 percent more efficient than current-day models — and free of ozone-ravaging CFCs. The contest spurred manufacturers to put their energy-saving technologies and ideas into production. Since then the designs of many of these companies have progressed even further.

In 1997, DOE's Oak Ridge (Tenn.) National Laboratory in a cooperative R&D agreement with AHAM's Appliance Research Consortium unveiled the "Fridge of the Future" prototype. The concept here was to take a standard 20 cubic foot refrigerator with a freezer on top and slice its energy consumption in half, from 2 kilowatts per day to less than 1 kilowatt per day. Its technology included:

- Vacuum insulation panels used around the freezer section to reduce heat transfer.
- Polyurethane foam added to the doors, doubling insulation thickness.
- Replacing three motors operating on alternative current to drive two fans and the compressor with three direct current, electrically commutated motors.
- Replacing the automatic defrost control, which daily removed ice from refrigerant coils to improve heat transfer, with adaptive coils. It relies on fuzzy logic and sensors to make sure defrosting occurs only when needed, depending on humidity and number of door openings.

New engineering concepts in clothes washing and dishwashing have led to significant savings in energy and water usage. Manufacturers report that front-loading clothes washers, which are more commonly used in Europe, save thousands of gallons of water each year. One model boasts 67 percent energy savings and 68 percent water savings compared with conventional units, while another promises 50 percent energy reduction and up to 10,500 gallons of water saved per year. And although front-loading (also known as horizontal-axis) machines are typically considered most efficient, top-loading machines are now being equipped with sensors that detect the amount of dirt and the size of the load and adjust water levels accordingly. Some decrease wash time without decreasing cleaning. Several dishwasher models also conserve water through dirt sensors that adjust cycle water levels. The overall message is that energy and water conservation do not compromise performance.

A newly introduced product category is the clothes vitalizing system, which smoothes wrinkles and helps remove odors in clothing, thus reducing the number of trips necessary to the dry cleaners. And the first washer that washes wool in a machine with water was certified by The Woolmark Company. Other important factors are low-noise requirements and longevity promises.

Architect's Evaluation

When a consumer turns to an architect for help in evaluating, comparing and specifying home appliances that are environmentally friendly the following questions will provide insight:

- *What is the energy consumption — both in terms of how much energy it uses, and all the energy that goes into making the product?*
- *What about recycled content?*
- *How long will the product last?*
- *How will the product contribute to my client's quality of life?*
- *Ultimately, what is the overall payback, both monetarily and in terms of environmental stewardship?*

There will still be choices to make, weighing costs against features and benefits, but at least the opportunities to go eco-friendly in appliances are growing and providing architects with better options for their clients.

A front-loading washer is just one way families can save energy and water doing household chores. One model is reported to save 67 percent energy savings and 68 percent water savings compared to conventional washers.

To save energy and time by reducing the number of trips to the dry cleaners, many homeowners are installing a clothes vitalizing system that smoothes away wrinkles and helps remove odors in clothing.

CASE STUDIES

CONSIDER THE FOLLOWING EXAMPLES OF ARCHITECTS SPECIFYING HOME APPLIANCES:

The first project involved a new residential design for a young family. The family chose to build a new house in a golf community setting, yet in a development approved by the Audubon Society for its eco-sensitive environment. In this household, the father worked, the mother was a homemaker and cooking and entertaining was of great importance to her, as was efficiency. She very conscientiously recycled as much of the family's consumables as possible. The architect presented the life-cycle cost formula: that the upgrade cost of sustainability (the extra costs associated with an energy efficient product) would far outweigh the ultimate energy savings over the lifespan of the product plus the extra value of their stewardship as contributors toward the goals of sustainable design. In simpler words, you may spend more up front to save more later and become a friend of the environment.

For this family's home, the architect recommended an ENERGY STAR-labeled dishwasher, refrigerator, and clothes washer. The reasons were obvious.

Dishwasher. The ENERGY STAR-qualified models reportedly save in energy and water usage. These dishwashers:

- Use 25 percent less energy than the federal minimal standard for energy consumption.
- Save approximately $30 a year on energy costs compared to older models.
- Save approximately $300 over a lifetime — twice the cost of the sustainability upgrade cost.

The family was pleasantly surprised that the specified dishwasher was even more eco-friendly than anticipated; when in operation it was extremely quiet (the typical noise level was reduced), which allowed for other simultaneous activities in the kitchen, such as television viewing.

Refrigerator. The refrigerator models labeled ENERGY STAR are designed to be more efficient while providing more cubic feet, and at the same time better extend the life of the food. One example of a change in design for energy efficiency is the placement of the water/ice component in the door. This minimizes the amount of energy lost when the refrigerator is opened to retrieve ice or water. Overall ENERGY STAR-labeled refrigerators are designed to:

- Use half as much energy as a 10-year-old model.
- Use 40 percent less energy than conventional models sold in 2001.
- Use high-efficiency compressors, improved insulation, and a more precise temperature and defrost mechanisms to improve energy efficiency.

Clothes washer. The ENERGY STAR label can translate to the use of 18 to 25 gallons of water consumed compared to 40 gallons used by a standard machine. For an average family, the annual savings are huge: two loads per day X 365 days per year = 700 loads per year X 20 gallons saved = 14,000 gallons per year. Some energy efficient washers detect the amount of dirt and the size of the load and adjust the water accordingly.

The second specification example involves the design of a room added to a garage of a house in an historic district. The owner is a couple, each of whom has a professional career and likes to lead an active outdoors life in their free time. The addition was to contain a laundry area, in which were placed new appliances that could add efficiency to the couple's lifestyle as well as save energy and water consumption. The appliances specified here included a washer/dryer and two relatively new categories — a clothes vitalizing system and clothes drying cabinet.

Washer/dryer. Very popular in Europe, front-loading washers are designed to consume less water, can handle greater capacity, and are considered to be more gentle on clothes. An ENERGY STAR-label front-loading washer is designed to use 76 percent less energy and 69 percent less water than the traditional top-loading washer. The washer and dryer feature a matched cycle time to economize on space needed for staging laundry.

Clothes vitalizing system. Avoiding trips to the dry cleaners yet having fresh, clean clothes to wear is a pleasure — and an efficiency. The system smoothes wrinkles and helps remove odors in clothing — and saves wear and tear on clothing.

Clothes drying cabinet. The drying cabinet dries outerwear and shoes moistened by inclement weather as well as delicate items. This appliance interested our couple, who often went jogging in rainy weather.

Higher efficiency in appliances doesn't need to come at the cost of lost aesthetics. In fact, much emphasis has been placed on the appearance of energy-efficient appliances. The dominant aesthetic is slick, high-tech. Stainless steel is very popular as well as a new generation of virtually maintenance-free metallic finishes. Dishwashers and refrigerators are often fronted in wood panels that match kitchen cabinets. Ovens can be installed separately from stove tops, allowing for more creative kitchen designs. Operating panels are more discretely integrated in the overall appliance design creating a softer image.

There can be no doubt that in the future the drive toward energy efficiency will continue and increase. Consumer interest is growing. Government standards may tighten, but in the meantime, manufacturers will pursue even greater savings. Architects can join in this contribution to sustainable design by considering the specification of energy-efficient appliances.

Click for Additional Required Reading: The article continues online at *archrecord.construction.com/resources/conteduc/.* To receive AIA/CES credit, you are required to read this additional text. The quiz questions below include information from this online reading. To receive a faxed copy of the material, contact Mark R. Johnson, FAIA, AIBD, e-mail Mark_R_Johnson@whirlpool.com.

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LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Describe the contribution of energy-efficient appliances in the goal of sustainable architecture.*
- *Explain the driving forces behind the development of energy-efficient appliances.*
- *Compare appliances using the life-cycle cost formula.*

INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 224. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website—*archrecord.construction.com*—to receive one AIA/CES Learning Unit.

QUESTIONS

1. In recent studies when purchasing appliances, consumers rated energy-efficiency as:
  a. the most important upgrade.
  b. important but not worth the extra cost.
  c. somewhat important.
  d. not important.

2. When were the first federal efficiency standards issues by the Department of Energy (DOE)?
  a. 1964
  b. 1975
  c. 1984
  d. 1988

3. Manufacturers reported that some clothes washers labeled in the ENERGY STAR program were how many percentage points more efficient than federal minimal standards?
  a. 20 percent
  b. 30 percent
  c. 50 percent
  d. 60 percent

4. What is the typical life expectancy of "white goods?"
  a. 2–9 years
  b. 10–18 years
  c. 1–5 years
  d. 7–11 years

5. How many "white goods" were reportedly disposed of in 1996?
  a. 45 million
  b. 30 million
  c. 45,000
  d. 3,000

6. The concept of life-cycle cost analysis is generally unfamiliar to consumers.
  a. true
  b. false

7. The purchase of energy-efficient appliances can affect quality of life.
  a. true
  b. false

8. If the U.S. Census predicts 135 million households by 2010, how many will have refrigerators and ranges, according to the Association of Home Appliance Manufacturers?
  a. 100 million
  b. 110 million
  c. 120 million
  d. 135 million

9. What material was added as insulation to increase the insulation value of the doors of the DOE's Fridge of the Year?
  a. rubber
  b. paper-wrap
  c. plastic
  d. polyurethane foam

10. What is a useful formula for evaluating the life-cycle cost of energy-efficient appliances?
  a. Sustainability Upgrade Cost ≤ Energy Savings Cost over Product Lifespan ÷ Average Years of Use
  b. Sustainability Upgrade Cost ≤ Energy Savings Cost over Product Lifespan x Time Value of Money
  c. Sustainability Upgrade Cost ≤ Energy Savings Cost over Product Lifespan + Value of Environmental Stewardship through Sustainable Design
  d. Sustainability Upgrade Cost ≤ Energy Savings Cost over Product Lifespan – Product Initial Cost

ABOUT WHIRLPOOL CORPORATION

Whirlpool Corporation is the world's largest manufacturer and marketer of major home appliances. Headquartered in Benton Harbor, Mich., the company manufactures in 13 countries and markets products in more than 170 countries.

Whirlpool Corporation's longstanding partnership with the Environmental Protection Agency (EPA) and the Department of Energy (DOE) was recently highlighted when Whirlpool received its fifth ENERGY STAR Partner of the Year award. This recognition is largely attributable to Whirlpool's accomplishment in manufacturing more ENERGY STAR qualified home appliances than any other appliance manufacturer. Whirlpool took its leadership to a new level in 2003 by becoming the first major appliance company to announce a global greenhouse gas reduction target that will be achieved in substantial part through the indirect emission reduction effect of producing ENERGY STAR qualified appliances. This reduction is equivalent to eliminating the carbon emissions from 10 million cars annually.

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former U.S. Senator (NH);
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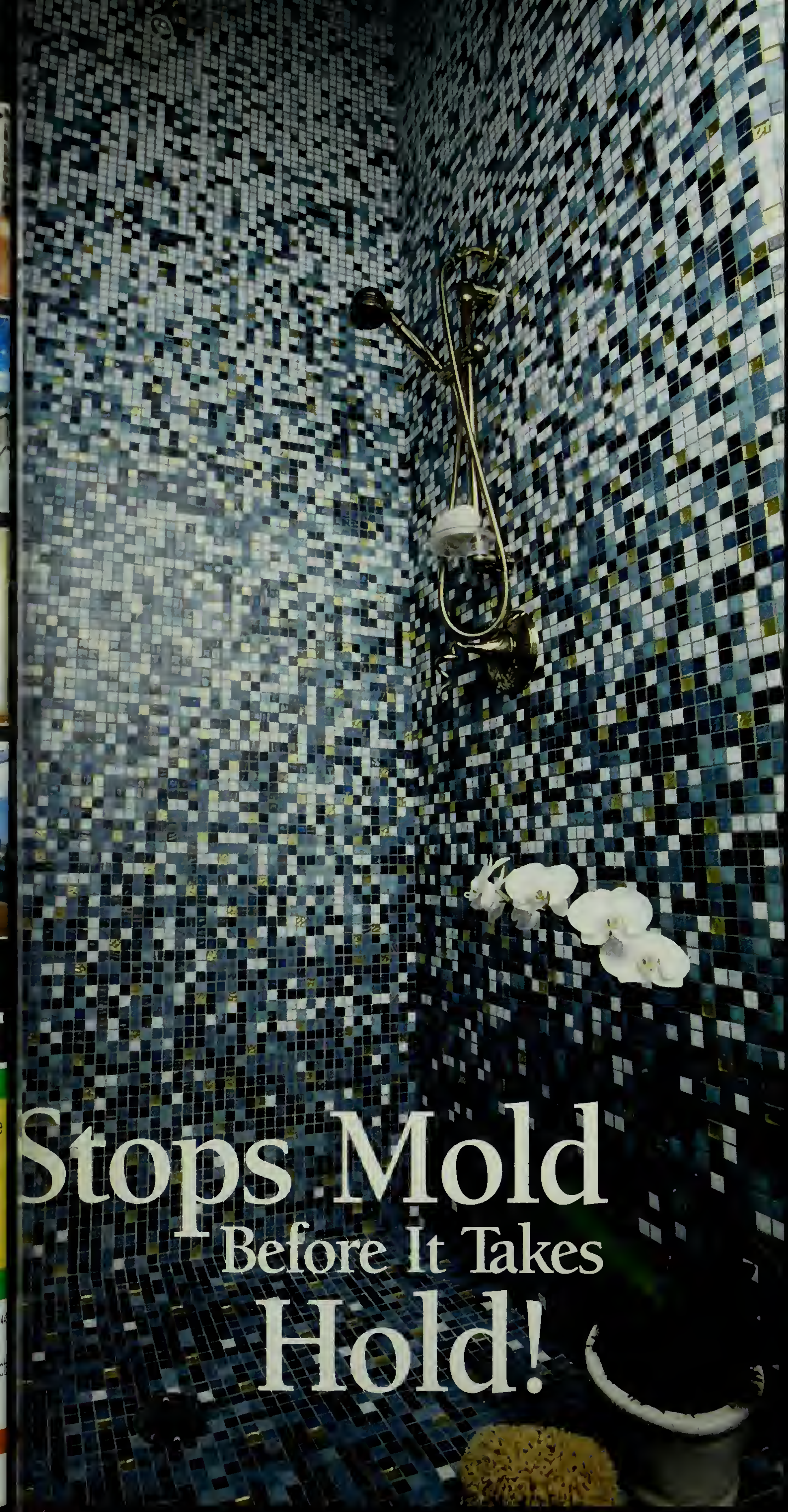

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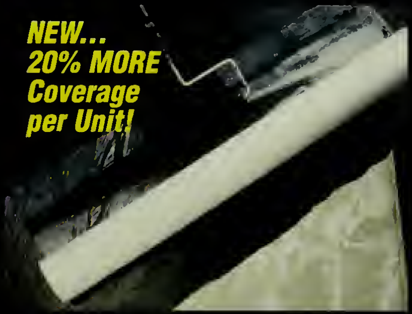

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Products Doors & Windows

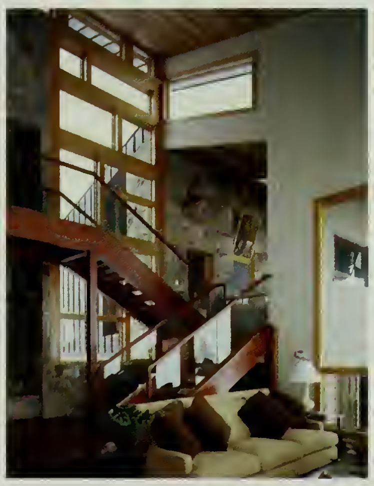
While most of the **door and window** offerings reviewed this month are for the residential market, there are a few notable commercial offerings, including an **aluminum door and window system** now available in the U.S. Building code issues, energy efficiency, and low maintenance remain hot topics. *Rita F. Catinella*

Concept home showcases the potential of windows beyond the traditional expectations

Andersen Windows' 6,000-square-foot, four bedroom concept project—the Andersen "inHOME"—serves as a test lab for new window technologies and a showcase for windows that perform beyond the traditional expectations of providing light, vision, and ventilation. Designed by architect Michael Plautz, AIA, principal of Minneapolis-based RSP Architects, the home is anchored on a rocky ridge overlooking the mountain slopes of Park City, Utah, site of the annual Sundance Film Festival.

The project team took a window-centric approach, integrating window systems into the entire design rather than treating them as mere openings in outside walls. Technology-driven window ideas integrated into the home include "switchable" electrochromic glass in various window locations and other prototypical concepts from Andersen.

Utilizing a wide range of window sizes and shapes, the interior elevation of each wall was carefully considered as a floor plan. Each of these "wall plans" studied not only the windows' proportion, arrangement, and view, but how they influenced each room. Interior windows extend light and views to rooms that are not located on an outside wall—for example, several of the bedrooms share views and light with more public spaces while still maintaining privacy. Windows on two or three sides of virtually every room offer the spaces a more even light level.



InHOME's switchable glass technology and use of interior windows allow for optimal light and privacy control.

Serving as an organizing element, a 4' thick stone wall runs from south to north, topped by a row of 15 clerestory windows that bring in morning sun and ventilation while dissolving the line between the roof and wall outside. The extensive use of indigenous rock and timber and a roofline that echoes the rise and fall of the mountains help the home blend into the dramatic surrounding landscape. Andersen Windows, Bayport, Minn. www.andersenwindows.com **CIRCLE 200**

Marvin customized more than 315 windows for the home, including 162 operating and stationary double-hung chain-and-pulley units.

A team effort results in hundreds of custom windows for a country home

When Cincinnati-based RWA Architects was hired to design an estate-size country home in the farmland of southwest Ohio, they needed a partner to help customize 315 windows, including 242 old-style, chain-and-pulley windows that met the firm's criteria. Based on a long-term relationship with Marvin Windows and Doors, the team provided the company with developed drawings and details and asked them to turn around a prototype of an old-style, chain-and-pulley double-hung window that incorporated mahogany species, custom simulated divided lite (SDL) bars with unique curves, and energy efficiency. After two prototypes, the teams were satisfied with a historic-looking design that achieved a high design pressure rating. Marvin's largest residential order to date, the project required the company to create 160 CAD drawings that detailed all the parts, pieces, and processes necessary to manufacture the windows, including elevations, cross-sectional details, and glass sizes. All of the windows are made entirely of solid mahogany with custom-casing exteriors, custom-crown molding, and details such as pocket tenons. The project, still under construction, is expected to be complete next year. Marvin Windows and Doors, Warroad, Minn. www.marvin.com **CIRCLE 201**

Heavy-duty sliding-door options

Weather Shield's new sliding patio door and French sliding door feature a standard design pressure rating of DP-35, with a DP-50 upgrade available that complies with some of the strictest building code requirements in the country. The doors feature a 1¾" thick jamb, approximately 25 percent heavier jamb components, an improved slider system, and a new door-channel design that guides the moving panel. Weather Shield, Medford, Wis. www.weathershield.com **CIRCLE 202**

Products Doors & Windows

▼ Horseless carriage–house doors

Inspired by the doors that graced the carriage houses of fine homes past, the Classica collection of garage doors are manufactured in pinch-resistant, precision-shaped steel with carriage-house design embossments. An optional factory-installed polystyrene insulation provides an extra thermal barrier against inclement weather and reduces noise. Each door comes with heavy-duty hardware galvanized to protect against rust. Amarr Garage Doors, Winston-Salem, N.C. www.amarr.com **CIRCLE 203**

▲ Will last for decades

AuraLast wood protects wood windows and patio doors against wood decay, water absorption, and termite infestation. AuraLast's water-based-treatment process is not compromised by nail or screw holes, and results in a significant decrease (96 percent) of VOCs during production. Jeld-Wen offers a 20-year warranty against decay and/or infestation for Pozzi Custom Collection products with AuraLast. Jeld-Wen, Klamath Falls, Ore. www.jeld-wen.com **CIRCLE 205**

▼ The unseen screen

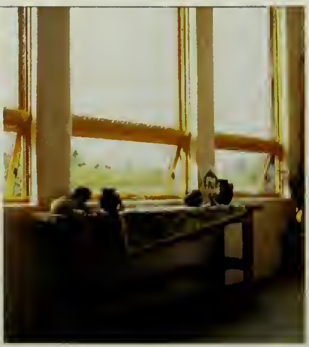
Pella offers Vivid View screens as a premium option on select Pella Designer Series and Architect Series windows. Vivid View screens are made with a patent-pending transparent screen fabric developed by W.L. Gore & Associates. The screens are less obtrusive from the exterior of the home and allow for greater airflow into and out of the home, reducing energy bills. Pella, Pella, Iowa. www.pella.com **CIRCLE 204**

▲ Rated aluminum systems

Aluflam has successfully completed fire testing of its aluminum door and window systems for the North American market. Originally developed and proven in Europe, the Aluflam system is comprised of custom-extruded and -filled aluminum framing combined with a clear, wire-free glass laminate. The glass is supplied by Vetrotech Saint-Gobain of Auburn, Washington. Aluflam N.A., Huntington Beach, Calif. www.aluflam-usa.com **CIRCLE 206**

► Climate-controlling glazing

Hurd has added three new glazing options to its ComfortGlaze system. Sun Blocker is formulated to keep homes cooler in southern climates, Climate Control keeps homes warm in northern climates, and Super Sun Blocker (right) is for locations with strong or extreme sunlight. All Hurd windows feature high-performance glass from Guardian Industries. Hurd Millwork, Medford, Wis. www.hurd.com **CIRCLE 207**



▲ VIP design awards

The winners of Vetter Window & Door's annual national design contest, the Vetter Inspired Project (VIP) Awards, include a mixed-used commercial property in Market Square in Amesbury, Massachusetts (top) designed by Woodman Associates Architects, and a 6,000-square-foot lakeside retreat in Lake Geneva, Wisconsin, designed by McCormack & Etten Architects (above). The awards honor design excellence in projects that use Vetter windows and doors. Vetter Windows & Doors, Mosinee, Wis. www.vetterwindows.com **CIRCLE 208**

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▼ New windows help keep prison secure

The renovation of the 140-year-old ACI Maximum Security Prison in Cranston, Rhode Island, designed by William Kite Architects of Providence, included the replacement of 61 windows, each measuring 8' x 18'. Moduline Window Systems supplied its Signature Series windows with a 1" setback, security screens, and bullnose-profiled exterior subframe. The windows are fixed, top-hung, outswing vents, factory-glazed by Moduline with 1" insulating glass. Moduline Window Systems, Terrell, Texas. www.vistawall.com/moduline **CIRCLE 209**

◄ Rustic-look fiberglass door

The Classic-Craft Rustic collection features the look of real wood graining, natural stained wood, authentic detailing, and the performance of Therma-Tru's fiberglass door systems. Initially available in 8' heights and 3' and 3'36" widths for today's larger entryways, the collection has been popular in the western and southwestern states. For 2004, Therma-Tru is introducing a 6'8" high door. Therma-Tru, Maumee, Ohio. www.thermatru.com **CIRCLE 210**

► 45-minute composite-core fire door

VT Industries offers a new 45-minute fire approval using a Structural Composite Lumber (SCL) core door. The approval is based on Intertek/Warnock Hersey Category A guidelines in accordance with the UBC standard 7-2-1997. The SCL core door meets positive pressure approval for both wood veneer and high-pressure decorative laminate-faced doors and can also be used when neutral or negative pressure doors are allowed. VT Industries, Holstein, Iowa. www.vtindustries.com **CIRCLE 211**

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2003 MCA President's Award Winner, commercial category: Reliant Stadium, Houston, TX
Manufacturer: CENTRIA

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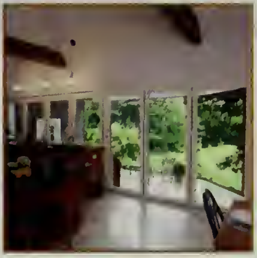
When is a wall not a wall?



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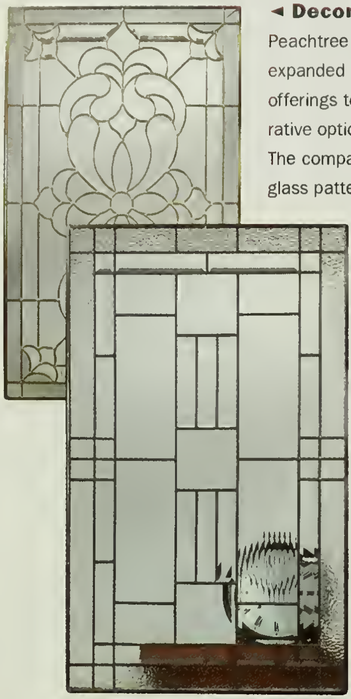

◂ Decorative glass panel designs

Peachtree Doors and Windows recently expanded the company's entry door system offerings to include new panel designs and decorative options and an improved frame and sill. The company introduced five new decorative-glass patterns, including the Bouquet (far left) and Mission (near left) patterns. Mission features clear and v-groove rectangular beveling and a granite-glass border treatment, with either zinc or the new patina caming. Including more than 100 glass pieces with curved and rectangular beveling, the Bouquet pattern features Baroque glass and clear bevels that have a gray ripple-glass border. Peachtree Doors and Windows, Gainesville, Ga. www.peachtreedoor.com **CIRCLE 212**

► Another grille option

Integrity Windows and Doors has introduced a two-tone, Pebble Gray grilles-between-the-glass option, in addition to its existing Stone White offering. The broader color selection enables specifiers to achieve color consistency between their grilles-between-the-glass and the window or door's exterior. On the interior, the grille bar comes in a neutral white to complement window treatments, wall coverings, and interior decor. Integrity Windows and Doors, Fargo, N.C. www.integritywindows.com **CIRCLE 213**

▲ California greening

Planned to be the greenest building developed by California State, Sacramento's Capitol Area East End Complex needed to comply with, or exceed, the standards set by California Building Code Title 24 for energy efficiency and green buildings. To help achieve the state's goal, the design-build team integrated Wausau's energy-efficient windows and curtain wall into the facade to maximize the use of daylight. Wausau Window and Wall Systems, Minneapolis, Minn. www.wausauwindow.com **CIRCLE 214**

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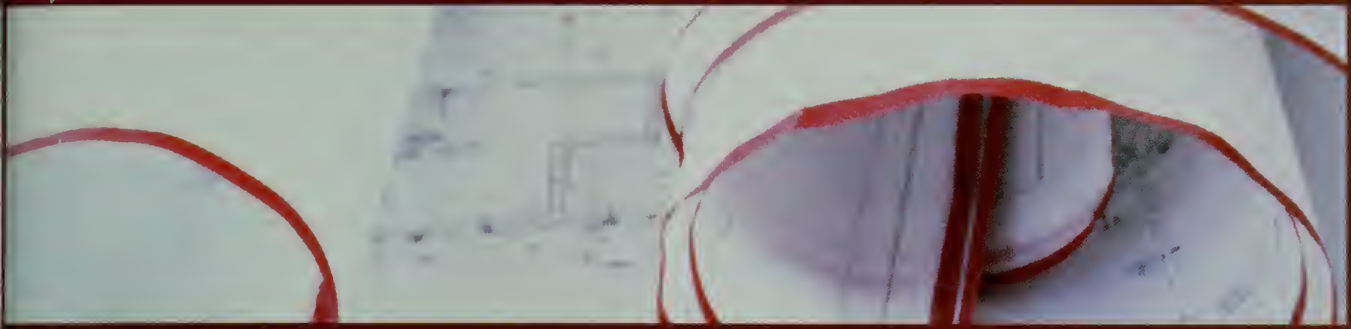

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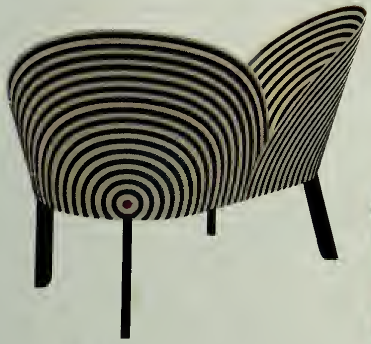
Product Briefs

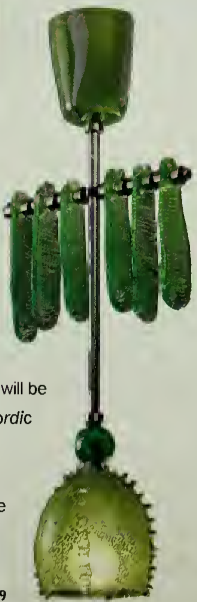
▾ New material for hearth designs

Doverra is a new noncombustible hybrid of fiberglass-reinforced cement. Unlike traditional glass-reinforced cement, Doverra's formula and processes incorporate an unusually high ratio of advanced fibers into the mix design and, when cast at ⅜" thick, give the material a light weight of 4.4 pounds per square foot. Doverra offers a complete line of hearth and mantel shelf products (classic mantel shown below). Doverra, Schaumburg, Ill. www.doverra.com **CIRCLE 215**

► Strong, squeak-free floor

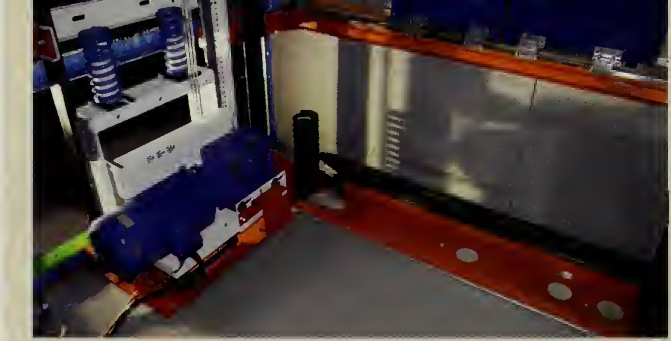
Introduced at this year's International Builders' Show in Las Vegas, the FrameWorks Floor System features Weyerhaeuser company's Trus Joist's Silent Floor joists, TimberStrand LSL rim board and beam products, TJ Performance Plus panel, and the TJ-Pro Rating system, a design tool used in evaluating the factors that contribute to floor performance. Trus Joist, Boise, Idaho. www.weyerhaeuser.com **CIRCLE 217**





► Icy hot designs

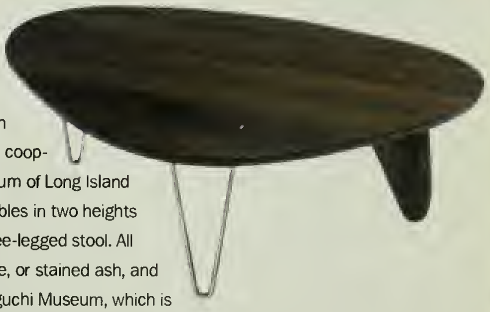
More than 200 objects designed by Scandinavian women will be on view from April 23 to September 12 in the exhibition *Nordic Cool: Hot Women Designers* at the National Museum of Women in the Arts (NMWA). The show includes designers who have changed the course of decorative arts and those currently making contributions to the industry. Bench for Two, by Nanna Ditzel, and Grön Lampa, by Anna Forsling, shown. NMWA, Washington, D.C. www.nmwa.org **CIRCLE 219**



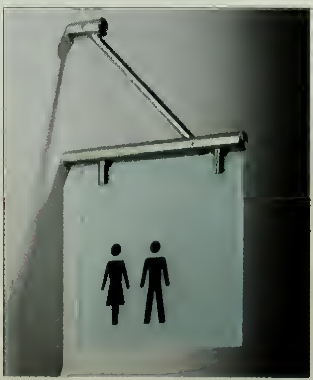
Product of the Month ISIS Elevator

ThyssenKrupp claims the company's new ISIS elevator saves, on average, 60 square feet of building space per elevator. A geared traction system that will serve two to six stops, the first generation ISIS product is currently available and priced to compete with other low-rise products. The second generation ISIS product, expected to be available in the second quarter of 2004, will serve two to 50 stops. At the heart of the ISIS system is a patented synthetic lift system that includes K-Core, a synthetic hoist rope made of Dupont Kevlar that is stronger and more flexible than traditional steel rope, and an advanced set of synthetic modular traction sheaves. The sheaves are one third the size of typical steel sheaves, allowing for reduced machine and motor sizes and for ISIS to be contained completely within the elevator shaft. ThyssenKrupp Elevator, Frisco, Texas. www.thyssenkrupp.com **CIRCLE 216**

► Noguchi reedition and exhibition



The latest reedition of Isamu Noguchi's designs, the 1944 Fin Series, is available from Vitra in cooperation with the Noguchi Museum of Long Island City, N.Y. The series includes tables in two heights (coffee table shown) and a three-legged stool. All are made of solid walnut, maple, or stained ash, and chromed tubular steel. The Noguchi Museum, which is currently under renovation, will reopen June 12, 2004, with the exhibition *Isamu Noguchi: Sculptural Design*. Vitra, New York City. www.vitra.com **CIRCLE 218**



◄ For high-turnover positions

The Cristallo office sign system allows businesses to change the copy on their signs themselves with a Windows-based software program that prints a transparency to slip between the sign's nonglare security glass. The system features stainless-steel hardware and can be attached to interior walls, doors, or tables for a range of wayfinding applications. Topdeq, Cranbury, N.J. www.topdeq.com **CIRCLE 220**

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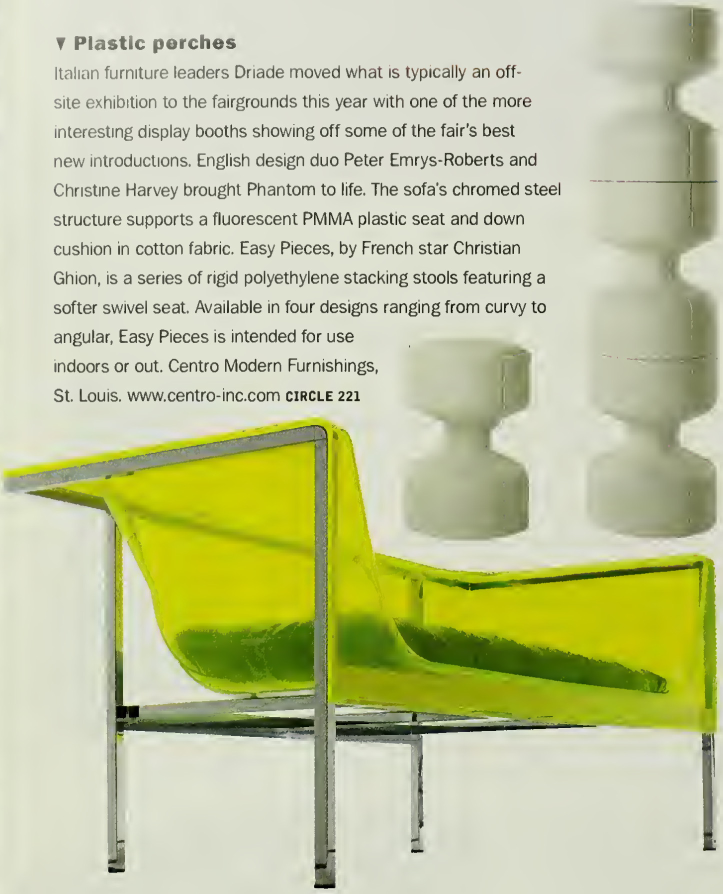
Product Briefs Cologne Fair

imm cologne, Germany's leading furniture fair, fell victim to the sluggish economy this year with fewer exhibitors and visitors. Showcased here are some surprising standouts. *Josephine Minutillo*

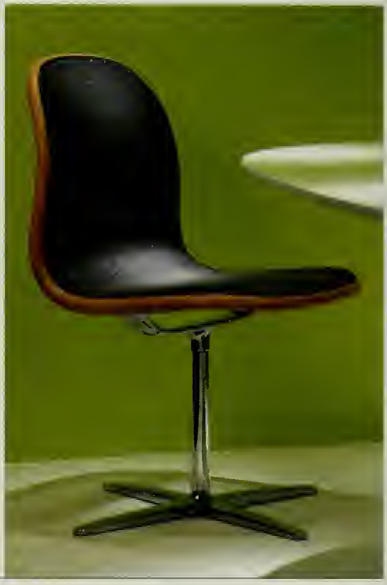
▾ Plastic perches

Italian furniture leaders Driade moved what is typically an off-site exhibition to the fairgrounds this year with one of the more interesting display booths showing off some of the fair's best new introductions. English design duo Peter Emrys-Roberts and Christine Harvey brought Phantom to life. The sofa's chromed steel structure supports a fluorescent PMMA plastic seat and down cushion in cotton fabric. Easy Pieces, by French star Christian Ghion, is a series of rigid polyethylene stacking stools featuring a softer swivel seat. Available in four designs ranging from curvy to angular, Easy Pieces is intended for use indoors or out. Centro Modern Furnishings, St. Louis. www.centro-inc.com **CIRCLE 221**



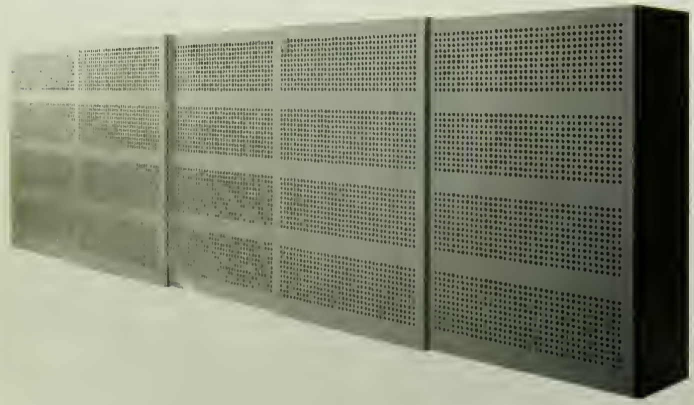
► Modern within the tradition

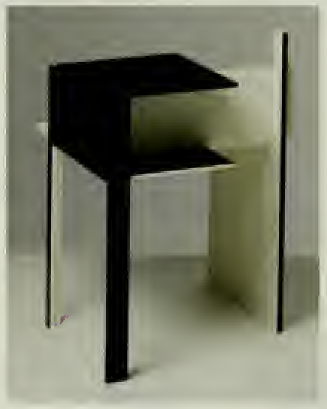
The fair's most exciting new introduction emerged from a product steeped in tradition. The Loop chair was designed by James Irvine for Thonet, original producers of bentwood furniture dating back to 1819. Composed of a single loop of bentwood, the chair's design combines traditional bending techniques with ultramodern 3D CNC machining. The seat swivels and is available with armrests and a disc base. ICF Group, Taftville, Conn. www.icfgroup.com **CIRCLE 222**



▾ Storing secret documents

Known for his spare, austere forms, Dutch architect Wiel Arets's work has been referred to as "industrial poetry." Lensvelt, the Dutch manufacturer of office furniture dedicated to contemporary design and production methods, enlisted Arets to design both its headquarters and a new product line. Echoing the rigid geometric forms of his buildings, the Stealth collection incorporates conference furniture, storage, and benches. The storage system was specifically designed to divide space while maintaining acoustic integrity to the open plan. Lensvelt, Breda, the Netherlands. www.lensvelt.nl **CIRCLE 223**



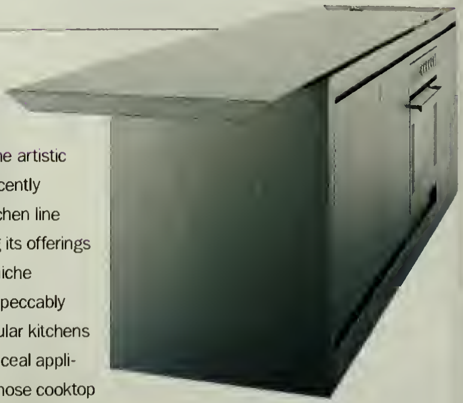


◄ Celebrating an icon

On the 125th anniversary of Eileen Gray's birth, ClassiCon paid tribute to her with a breathtaking gallery exhibition in the city and a series of new introductions. Gray designed this small table (left), called De Stijl for the compositional features it shares with the famed art movement, in 1922. Her classic Bibendum seat is now available in fabric finishes as well as leathers, and her Roquebrune chair has a new powder-coated finish. M2L, New York City. www.M2L.com **CIRCLE 224**

► Kitchen counterparts

Boffi, creator of high-end kitchens and baths under the artistic direction of Piero Lissoni, recently acquired the prestigious kitchen line Norbert Wangen, expanding its offerings to an even more exclusive niche market. The line features impeccably crafted stainless-steel modular kitchens notable for designs that conceal appliances. Shown here is k2, whose cooktop and sink are located beneath the mobile worktop/table. Wangen, himself an architect and designer, will continue to collaborate with Boffi as the division's designer. Luminaire, Chicago. www.luminaire.com **CIRCLE 225**



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▲ Shower with a splash of color

Away from the fairgrounds on the opposite side of the Rhine was another major exhibition space organized by Stylepark and featuring both well-known designers and up-and-comers. Agape introduced several new fixtures for the bathroom, including Al Dente, a line of showerheads and soap dishes inspired by a common fixture in the kitchen—the colander. Also new was Kaa, a soft, flexible, handheld showerhead made from anti-allergy silicone rubber. Moss, New York City. www.mossonline.com **CIRCLE 226**

▲ Fostering good design

German furniture makers Walter Knoll have added a new series of upholstered seating designed by Norman Foster to their collection. Following on the success of the Foster 500 and 501 ranges, Foster 505 comprises armchairs and sofas in various sizes with add-on and corner modules as well as chaise longues. Cubic armrests and generous seats rest atop a minimal metal base. M2L, New York City. www.M2L.com **CIRCLE 227**

► Design within reason

Kant was designed by Patrick Frey and Markus Boge as a clever and attractive way to keep an organized desk. Made completely of wood, Kant's folded rear section offers an easily accessible place to stow books and files. Kant is available in a variety of sizes and heights and with several accessories, including bookends, hanging files, a selection of drawers, and an additional magazine shelf positioned at the intersection of the legs. Nils Holger Moormann, Aschau im Chiemgau, Germany. www.moormann.de **CIRCLE 228**

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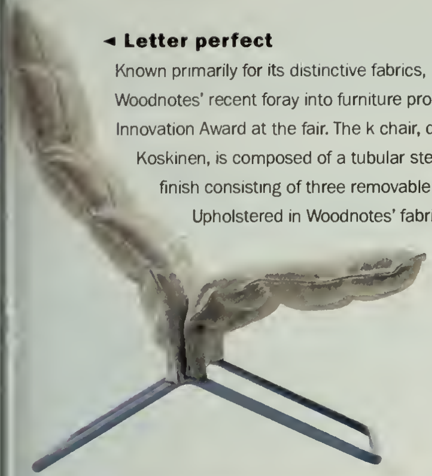
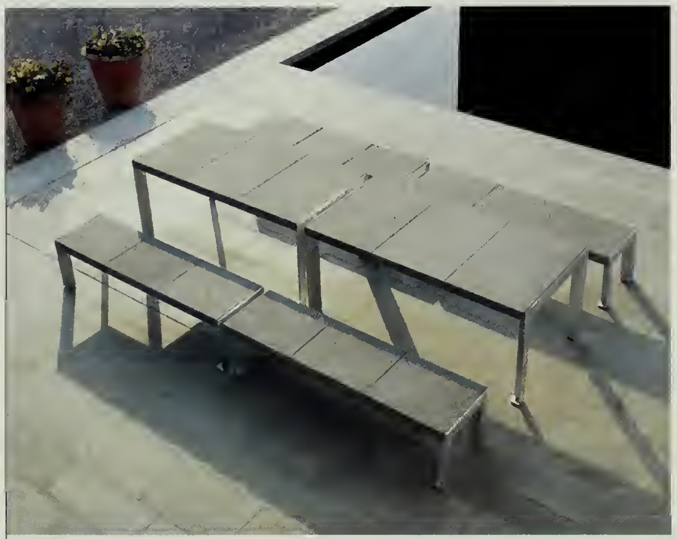


◄ Letter perfect

Known primarily for its distinctive fabrics, Finnish manufacturer Woodnotes' recent foray into furniture production won it the Interior Innovation Award at the fair. The k chair, designed by fellow Finn Harri Koskinen, is composed of a tubular steel frame with matte chrome finish consisting of three removable parts for easy shipping. Upholstered in Woodnotes' fabrics, the removable cover is a combination of paper yarn and cotton and is available in five colors. Centro Modern Furnishings, St. Louis. www.centro-inc.com **CIRCLE 229**



▲ Exposed to the elements

Reichenberg-Weiss's outdoor furniture is minimally designed and crafted to create a versatile range to blend with a range of environments. The line consists mainly of benches and tables but also includes chairs, sun loungers, and a serving trolley with barbecue. Pieces are made from a palette of materials selected for their proven performance in outdoor use. Shown here is a table and bench whose galvanized-steel frame supports a basalt base. The porous, volcanic stone slabs are cut to size and smoothed to a matte finish. Other materials include larch and limestone. Reichenberg-Weiss, Krefeld, Germany. www.reichenberg-weiss.de **CIRCLE 231**

► Not just for countertops

Corian has been cropping up everywhere lately. Dutch furniture makers Arco found a functional and elegant application for it in a new series of tables. The durable material provides a thin, scratch-resistant, easy-to-clean surface in eye-catching combinations, with bases in solid woods or metals. Shown here is Expression by Willem van Ast. Luminaire, Chicago. www.luminaire.com **CIRCLE 230**

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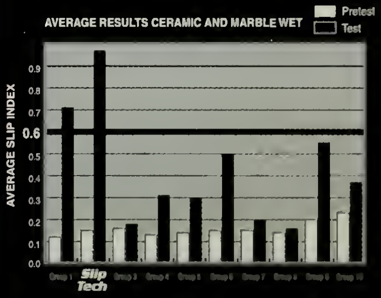

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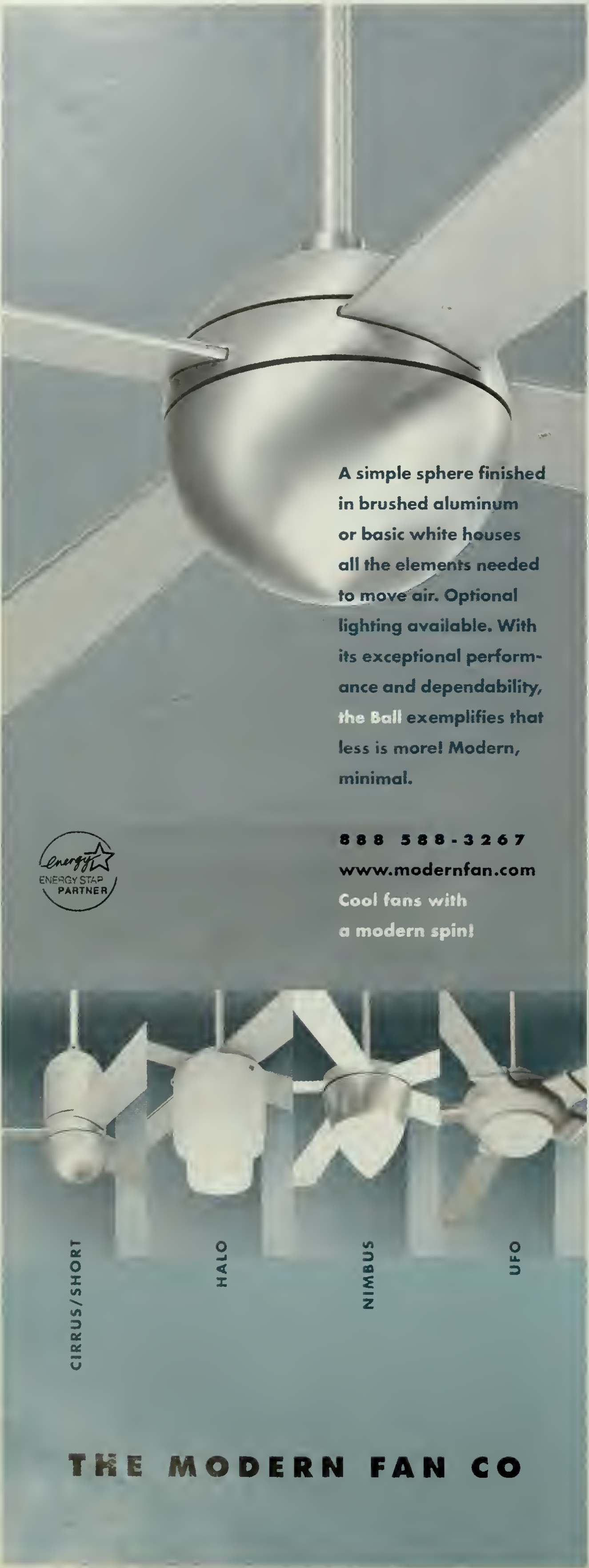
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Product Literature

Engineered wood guides

With the recent publication of *Glulam in Sacred Spaces*, APA-The Engineered Wood Association has added a new title to its library of building-type profiles featuring glue-laminated timbers. Through detailed photos along with commentary from designers, builders, and manufacturers, the publication examines how glue-laminated beams, columns, trusses, and traditional Tudor arches provide houses of worship with structural support. In addition, APA updated the 32-page *Glulam Product Guide*, which contains revisions to allowable stress properties, a new section on hybrid glulam beams made with laminated veneer lumber in the outermost top and bottom laminations, and new appearance descriptions for these products. APA, Tacoma, Wash. www.apawood.org **CIRCLE 232**

Steel joist guide

The Steel Joist Institute now offers the new technical digest number 10, *Design of Fire Resistive Assemblies with Steel Joists*, a comprehensive and informative review of fire ratings. The digest includes a step-by-step procedure for substituting K-series joists in assemblies containing S-, J-, and/or H-series joists. There is also a new appendix giving a complete listing of UL fire-rated assemblies containing steel joists. The Steel Joist Institute, Myrtle Beach, S.C. www.steeljoist.org **CIRCLE 233**

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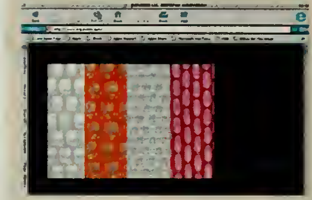

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Cylindrical lighting brochure

Allscape's *AA-105 Scanlite* brochure features the company's newest collection of pole- and wall-mounted architectural outdoor lighting fixtures. Allscape, Santa Ana, Calif. www.allighting.com **CIRCLE 234**

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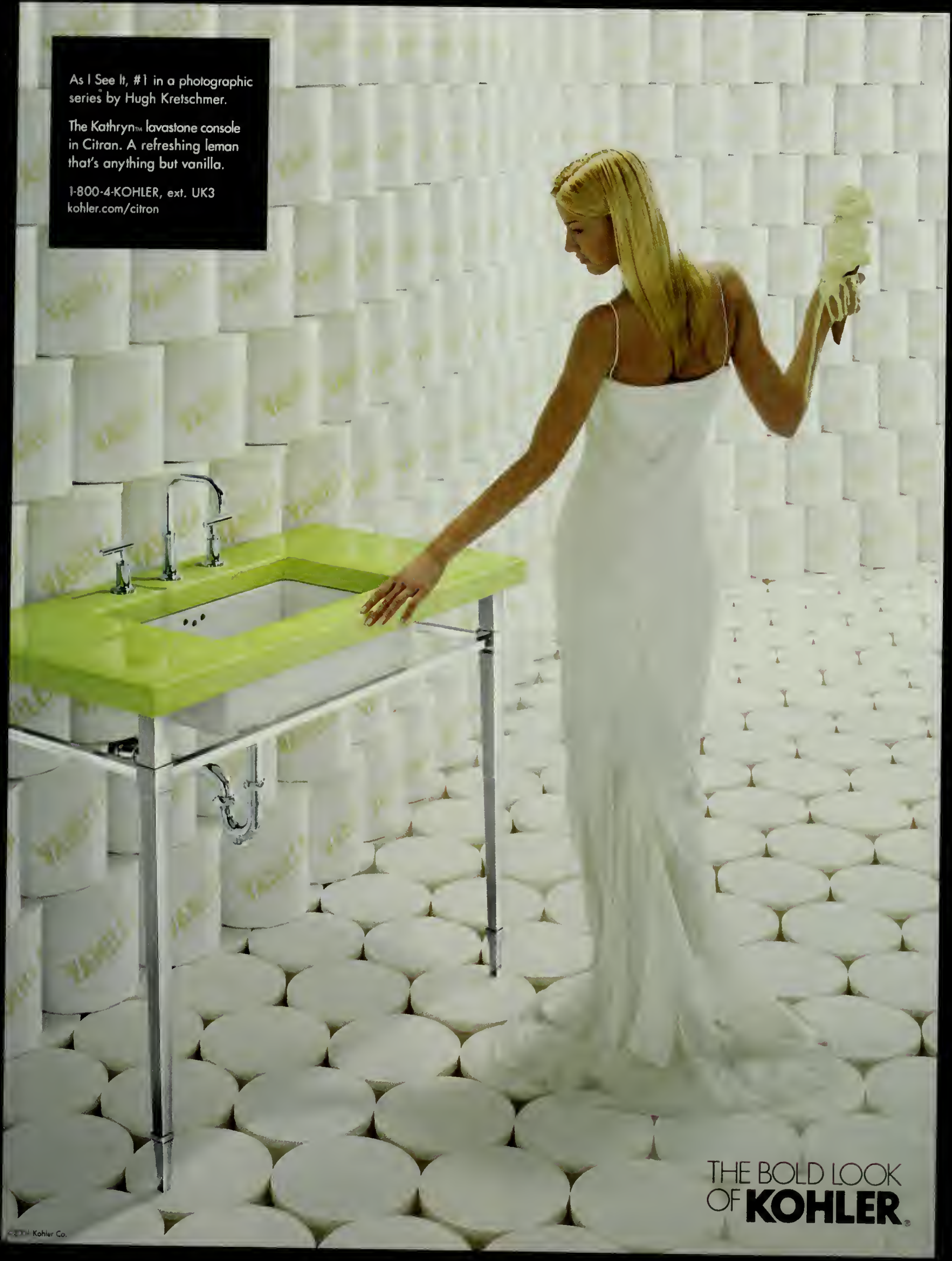

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Product Literature

Furnishings overview

Wilkhahn's new 66-page 2004/2005 catalog offers readers a general overview of the company's furnishings and its corporate philosophy. Wilkhahn is distributed in the U.S. through Vecta. Vecta, Grand Prairie, Texas. www.wilkhahn.com CIRCLE 235

Stair-tread catalog

Musson's new catalog focuses on solid, heavy-duty rubber, vinyl, or aluminum stair treads for interior and exterior use. The catalog illustrates fire-safety, grit-strip, and glo-strip stair coverings, and those for the visually impaired, with matching floor systems. All products are displayed in Musson's expanded color line with related accessories. Musson Rubber, Akron, Ohio. www.mussonrubber.com CIRCLE 236

Curtain-wall showcase

One of two new brochures from Wausau Window and Wall Systems showcases the company's full range of curtain-wall and window-wall products for multistory buildings or low-rise projects. Also available is the Advantage Wausau brochure, which features Advantage casement, fixed, single- and double-hung, horizontal-rolling, and projected windows. Wausau Window and Wall Systems, Wausau, Wis. www.wausauwindows.com CIRCLE 237

Hardwood molding data sheet

Junckers Hardwood introduces a new molding data sheet that showcases detailed profile illustrations of the various moldings offered by the company. Moldings are 100 percent solid hardwood, available in a multitude of species, and designed to blend with every flooring product offered by the company. Junckers Hardwood, Anaheim, Calif. www.junckershardwood.com CIRCLE 238

Causes of cracking

The Stucco Manufacturers Association (SMA) offers technical information on the issue of cracking in Portland cement plaster finishes and 3-coat stucco. The SMA "Stucco Crack Policy" includes information on causes, prevention, and remedies. SMA offers the design industry a variety of education materials on stucco. SMA, Newport Beach, Calif. www.stuccomfgassoc.com CIRCLE 239

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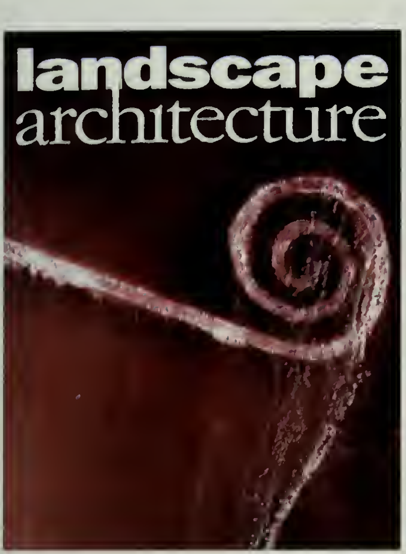

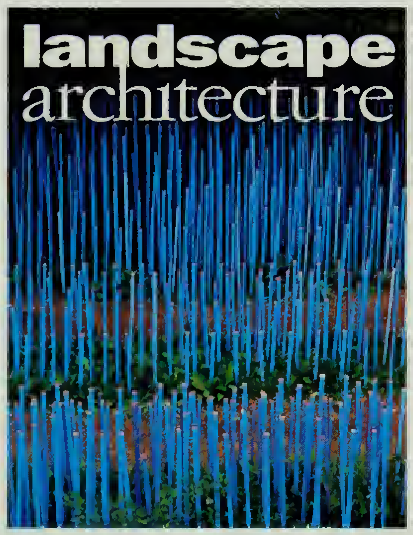

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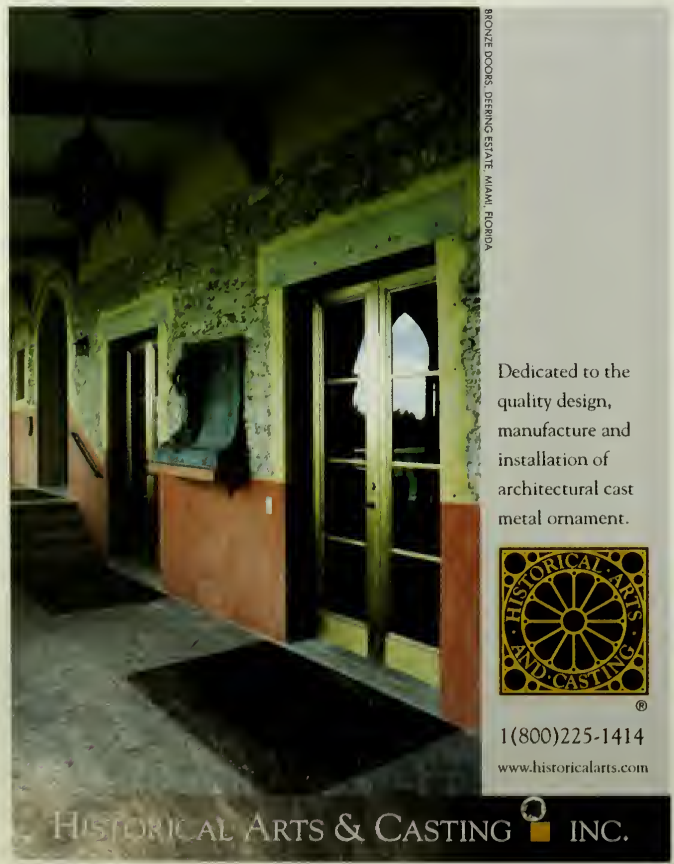

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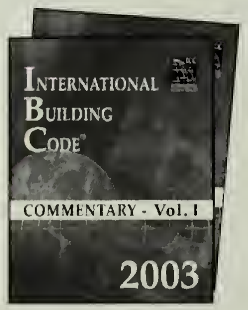

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4.	a	b	c	d	**9.**	a	b	c	d
5.	a	b	c	d	**10.**	a	b	c	d

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Material resources used: Article: This article addresses issues concerning health and safety.

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Fixture Design: Christopher Hixson

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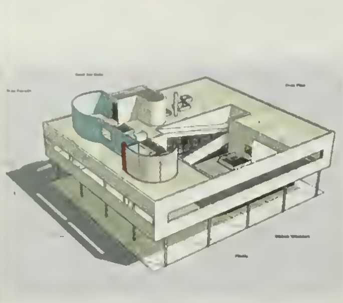

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FAAC International, Inc.

Gate Operators

2 Site construction

FAAC is the world's largest specialized manufacturer of automated operators for swing, slide, and barrier gate systems. FAAC hydraulic operators meet or exceed strict European safety requirements as well as UL325 and CSA standards in North America. FAAC received ISO-9001 certification in 1996. Swing gate operators for residential and commercial applications include on-gate and in-ground versions that are famous for being small, but powerful. Barrier gates versions include a high-speed model (.8 seconds) for freeway use and a special model designed for use with heavy traffic wide entrances that require long beams (up to 23-ft.).

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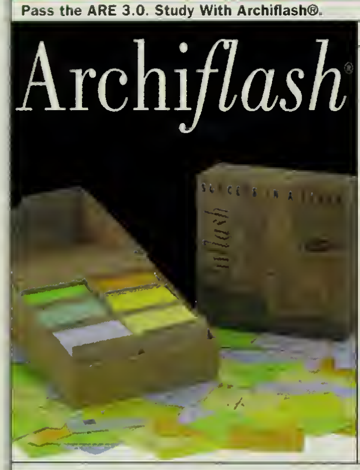

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Master Halco

Decorative Wire Fencing

2 Site construction

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www.FenceOnline.com 154

SoftPlan Architectural Design Software

Residential CAD Software 800-248-0164

1 General data

Easy to use software, professional results. SoftPlan Version 12, the industry's leading residential CAD software package, allows users to create house plans in a fraction of the time taken to draw by hand or using a conventional CAD package. SoftPlan is ideal for architects and designers looking to decrease drawing and revision time while increasing accuracy and productivity. Using the latest technology, SoftPlan gives you the flexibility to create complex, custom drawings with speed, accuracy, and ease. Quickly and easily create floor plans, elevations, cross-sections, photo-realistic 3-D renderings, material lists, and more.

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3 Concrete

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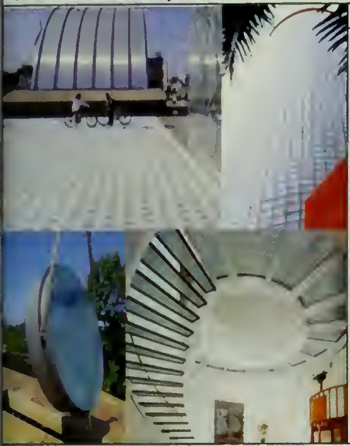

4 Masonry

Circle Redmont® specializes in bringing natural light into spaces in extraordinary ways.™ Circle Redmont custom manufactures fully engineered glass panel systems with proprietary setting materials and fabrication methods that have been developed and time proven over the last 40 years. As an expert in custom structural specialty glazing, Circle Redmont's in-house teams of designers, engineers, and craftsmen are ready to assist you from concept thru installation. With a resume of 40 years of satisfied customers and applications in the field, Circle Redmont knows how to cost effectively achieve the look you want.

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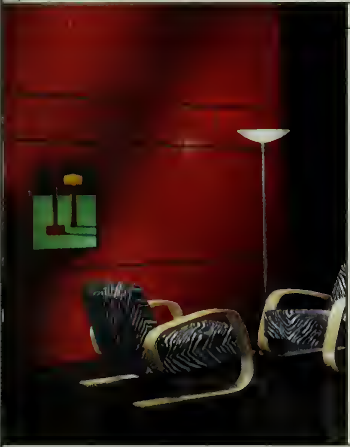
Dupont Surfaces

Quartz Surfaces



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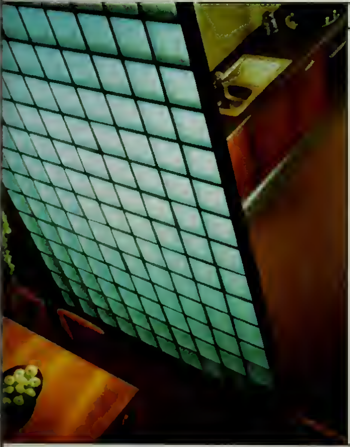
Vetroarredo North America

Glass Block 724-242-2121



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VETROARREDO® is moving the glass block world to a colorful new future with a collection of exciting, quality products second to none. It crafts beautiful color and crystal clear glass block; VETROSHAPE℠ Finishing Pieces; smooth satin finishes, and unique products like VETROMARMO™ Marble Faced glass block. If you desire an easily installed mortar and silicone free interior partition, VETROARREDO's modular system—the wooden grid that snaps together in a snap℠—is available in a variety of sizes and colors. Design your future with the world leader in glass block. Add Some Color to Your Life!℠ with VETROARREDO. Fax number 724-242-2323.

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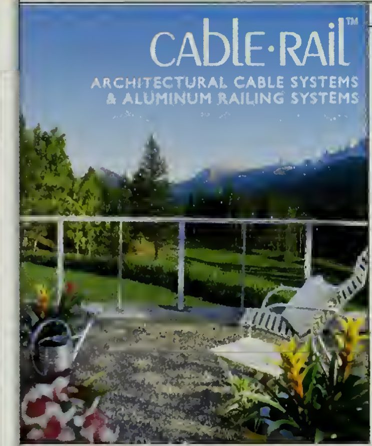
Feeney Wire Rope & Rigging

Cable Railing Products



5 Metals

Easy-to-install, prefabricated CableRail™ cable assemblies are an attractive, budget-friendly, and low-maintenance infill alternative for railings, trellises, and fences. Manufactured from high-strength, weather-tough type 316 stainless cable and available in a wide range of sizes with specially designed, low profile attachment fittings that won't impair your views. CableRail assemblies blend beautifully with wood or metal railing frame designs in interior and exterior settings. Feeney also offers complete aluminum railing frame systems with pre-engineered components for quick field assembly. Frames come powdercoated in a variety of colors with cable, glass, or picket infill options. Instructions, specs, and detail drawings available. Email sales@feeneywire.com.

www.cablerail.com 159

Gage Corporation, Intl.

Metal Surfacing 800-786-4243

5 Metals

GageMetal. An innovative collection of 16 new designs suitable for walls, elevators, and column covers. Standard sizes 48-in. by 96/120-in. with available thicknesses from .025-in. aluminum to 16-ga. stainless steel. Custom design and collaboration is available. All GageMetal designs are available in sheet form for direct application to the job site substrate. They can also be panelized for demountable use with Z-bar clips or the Gage extrusion system. Fax number 608-269-7622. Email gage@centurytel.net.

www.gageverticalsurfacing.com 160

Gage Corporation, Intl.

Cast Metal Wall Surfacing 800-786-4243

5 Metals

Gagecast® is a cast metal wall surfacing material suitable for a variety of interior architectural applications where patterns that feature high luster, relief, durability, and cost effective installation are a requirement. Twenty-four designs are standard, however, custom collaboration is encouraged. Gagecast is one component of Gage Vertical Surfacing. Contact the factory for product literature and selected samples. Fax number 608-269-7622. Email gage@centurytel.net.

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Melton Classics, Inc.

Online Resource for Balustrade Products

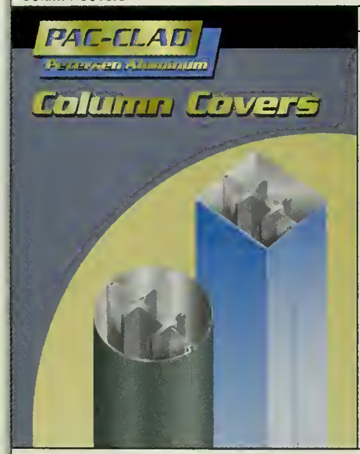
5 Metals

Announcing balustrades.com. Melton Classics balustrades.com Web site provides the design professional with the industry's most comprehensive selection of maintenance-free and low-maintenance balustrade products, allowing the design professional to select the ideal product for any design, application, and budget. Classic balustrade systems are available in integrally pigmented synthetic stone, marble/resin composite, cast stone, high density polyurethane, and fiberglass in over 50 sizes and designs. Custom balusters, radius railings, radius stairs, and lightweight balustrades are available. In addition to its balustrade products, Melton Classics also offers architectural columns, cornices, moldings, and architectural elements.

www.meltonclassics.com 162

Petersen Aluminum Corp.

Column Covers 800-PAC-CLAD



5 Metals

Petersen Aluminum now offers a line of column covers that are rigid, lightweight, and easy to install. These versatile systems allow designers to achieve unlimited radius and height by sectioning columns. Round, oval, square, rectangular, and custom shapes are available. PAC Column Covers come in a variety of finishes and colors, including Hylar 5000™/Kynar 500® painted aluminum, anodized aluminum, stainless steel, and composite panels. Petersen Aluminum Corporation's fabrication capabilities offer a great deal of flexibility. Please contact Petersen Aluminum with your fabrication needs.

www.pac-clad.com 163

Rami Designs

Handrail System 714-540-2817

5 Metals

Rami Designs is the designer, fabricator, and installer of Odyssey railing systems. This interchangeable glass and rod railing system is applicable both commercially and residentially. Rami Designs has served developers, general contractors, architects, designers, and homeowners for 23 years. The system consists of 316 stainless steel alloy (brushed or polished), and 3/8 tempered glass. The glass panels are suspended above finished floor for ease of drainage in exterior application. In addition, the method used to mount the panels allows for easy replacement. Installation of Odyssey is rapid and prevents holdup in construction. Fax number 714-540-3231.

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Architectural Wood Products

6 Wood & plastics

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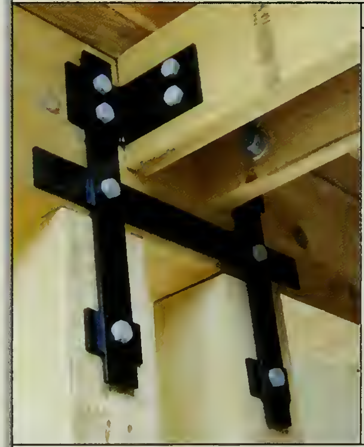

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Architectural Products

6 Wood & plastics

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Simpson Strong-Tie Co., Inc.

Anchor Tiedown System 925-560-9088

6 Wood & plastics

For multistory commercial buildings or apartment houses, Simpson's ATS (Anchor Tiedown System) provides an improved method for anchoring shearwalls to resist uplift forces caused by earthquakes and high winds. The patented concentric holdown system integrates vertical load resisting hardware easily and economically into standard wood frame construction up to five stories high. Anchor Tiedown System features high load capacity, fast installation, no horizontal drilling, and take-up of 1-in. of wood shrinkage and compression per floor. It can be installed allowing rod offset up to 1-3/4-in. maximum per floor. Code recognized by ICBO (ER-5090) and COLA (RR-25326). Fax number 925-833-1490.

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CertainTeed Corporation, Roofing Products Group

Roofing Shangle 800-782-8777

7 Thermal & moisture protection

Carriage House Shangle™ is equally at home on Victorian, colonial, and contemporary designs. With an ingenious construction that combines two full-sized base shingles, Carriage House simulates the depth of natural slate, an illusion enhanced by wide scalloped corners, a deep shadow line, and an oversized 8-in. exposure. Carriage House is built to last. Thanks to premium-grade materials and the exclusive CertainTeed Super Shangle® construction, a Carriage House roof provides four full layers of weather protection once applied.

www.certainteed.com 171

Alcan Composites USA, Inc.

Alucobond® Material Brochure 800-382-6445

7 Thermal & moisture protection

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EcoStar

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EcoStar's Majestic Slate™ Beaver Tail tiles offer a rounded slate style and unique color variations to create beautiful architectural options for premium steep-slope roofing. Developed using 100% recycled rubber and plastics, Beaver Tail offers an environmentally friendly roofing alternative. All EcoStar tiles offer an elegant look for steep-slope applications along with longevity, durability, and lightweight benefits. Beaver Tail commands an impressive 50-year warranty and offers Class A Fire and Class 4 Hail Resistance. For more information, please call or visit the Web site.

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Cement Board Fabricators

Fiber Cement Boards

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North Country Slate

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Cast Glass Products | 604-277-8533

8 Doors & windows

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www.supersealwindows.com | 177

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Zero International, Inc.

Acoustical Door Seals | 800-635-5335

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Architectural Floor Surfacing

9 Finishes

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180

American Shower Door

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10 Specialties

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9 Finishes

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Pratt & Larson Ceramics

Handcrafted Tile

PRATT & LARSON
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9 Finishes

Pratt & Larson Ceramics manufactures a versatile handcrafted tile line that includes design traditions from Arts & Crafts, classical, and contemporary styles. They are a leader in the industry, creating and producing 14 style design lines and four distinctive glaze lines, as well as several specialty glaze surfaces. Any tile can be ordered in any of the 300 standard glaze colors. Decorative tile may also be ordered hand painted to accent the relief designs. With over 20 years of experience, Pratt & Larson will make your tile as special as your home and your ideas.

www.prattandlarson.com 182

Custom Home Accessories, Inc.

Decorative Cluster Mailboxes

10 Specialties

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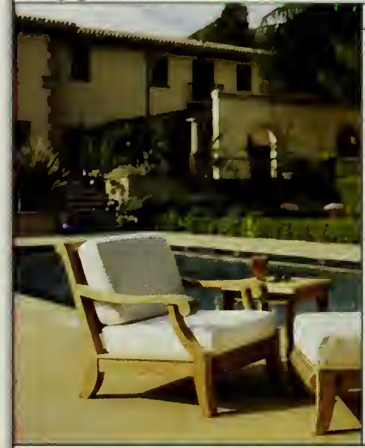
12 Furnishings



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12 Furnishings

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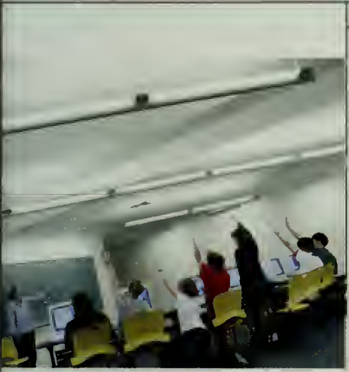

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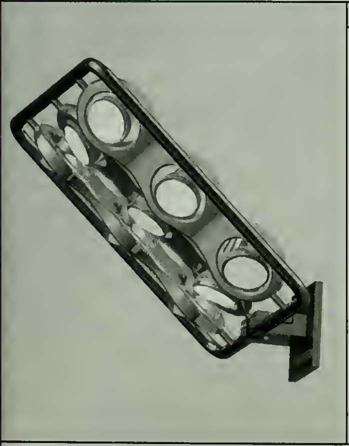

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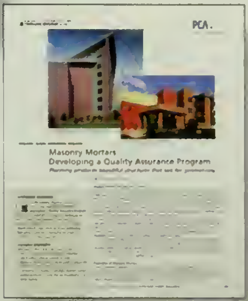

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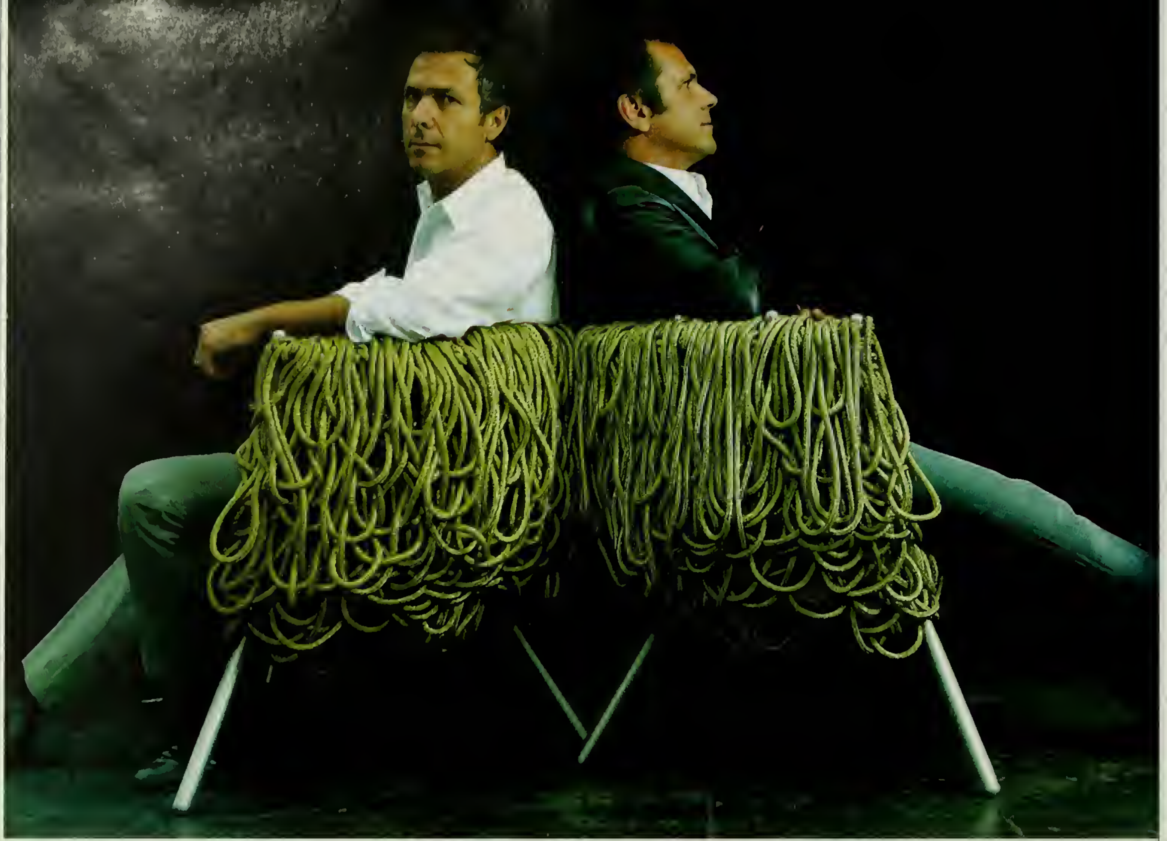


The Campanas: Designing objects with tropical influences and universal appeal

Interviewed by Josephine Minutillo

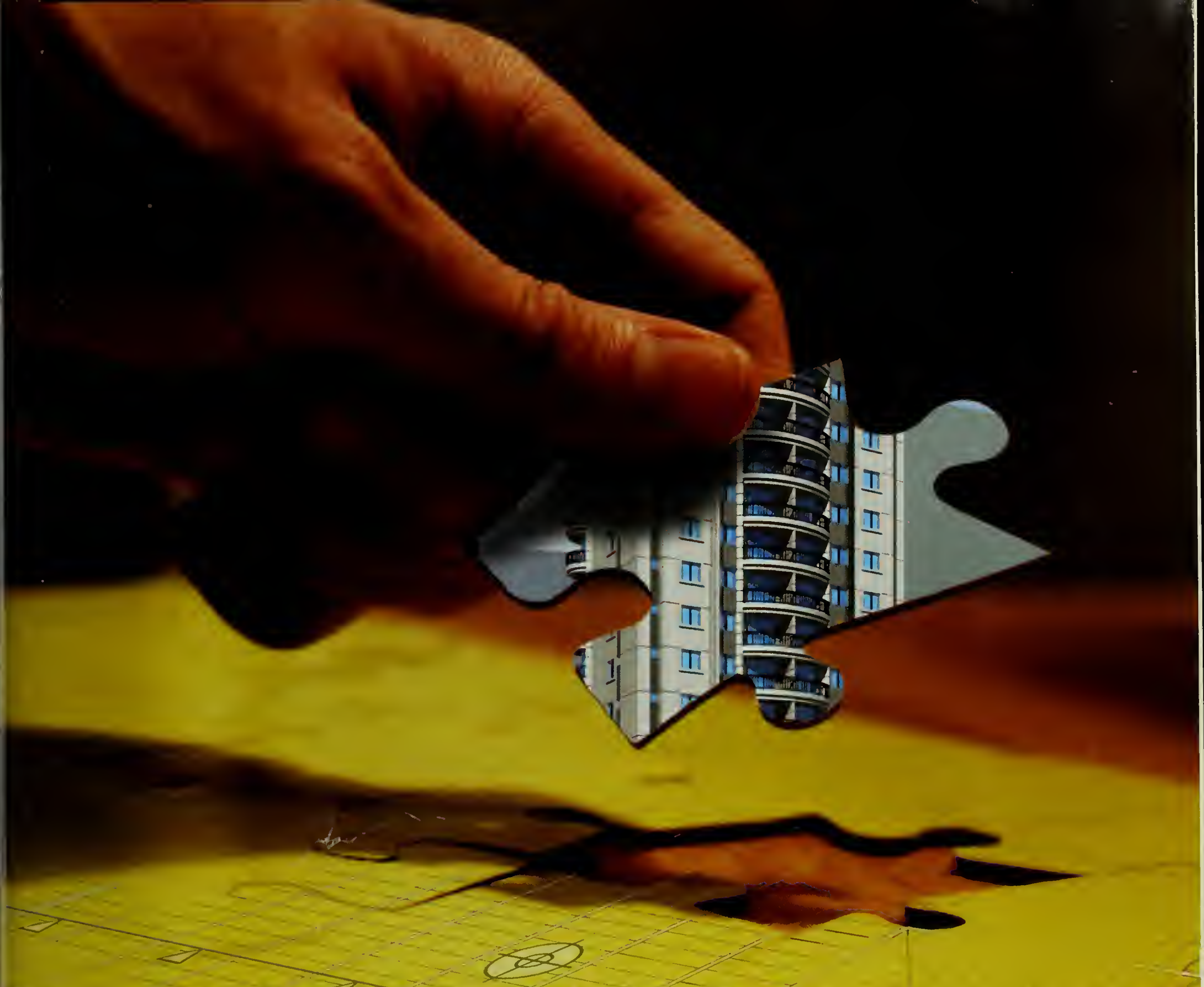
RECORD caught up with designers Humberto and Fernando Campana inside their Ideal House exhibition at the Cologne International Furniture Fair this past January. (For more on the Cologne fair, see page 214.) The Brazilian brothers created a house that, like much of their work, drew inspiration from the streets of their native São Paulo. The simple structure reflects the spontaneous architecture of Brazilian cities by combining organic materials and found objects into an edifice that springs to life seemingly effortlessly. The Campanas' bold furniture designs, particularly for the Italian manufacturer Edra, combine everything from garden hoses to scraps of wood into unexpected but visually stunning forms. A major exhibition of their furniture and object designs will be presented this summer at the Design Museum London.

Q: *Briefly describe your approach to designing the Ideal House.* **HC:** Our concept for much of what we design is to take something that looks very poor or banal and give it nobility. We observe how some communities in Brazil, although economically poor, are creatively wealthy, making beautiful yet useful objects. We also try to point out different possibilities and ways of creating. For example, the straw we used in this house is an alternative material to wood—to cutting down the noble trees of the Amazon.

How did you come to work together, and what is the relationship like? **FC:** I began as an architect, but my eyes were always more focused on objects than buildings. **HC:** I was a lawyer, but I was fascinated with design. Back in the 1970s, there were incredible design exhibitions in the art museum in São Paulo curated by Lina Bo Bardi and Pietro Maria Bardi. Those shows moved me. When my brother graduated, I had already started a small studio making sculpture and jewelry. He came one day to give me a hand and saw opportunities to express himself. Since then, we have worked side by side. What's really strange is that we've developed this sort of mimetism. It happens frequently that we'll arrive at the studio wearing the same thing.

Can you describe the process involved in creating your designs for Edra? **HC:** We have a creative relationship with Massimo Morozzi, the art director at Edra, where we are always exposing each other to visually stimulating and inspirational environments. It's a simple process, really. With the garden hose chair, for example, we made a prototype and sent Edra the pictures, showing step by step how to weave it together. **FC:** This also brings humanity to the design. The Favela chair is being made here in Brazil, so it's a social project, as well. It was funny explaining to the factory workers the chaos we wanted to translate into that chair. We took them to the garbage area where all the scraps of wood were chaotically piled and told them it was this disorder that we wanted to recreate. We asked them to be imprecise when building it and to exert their own creative freedom. We showed them the shape we wanted, and they put it together with the recycled slats of wood. Each one is unique in that way.

Photograph by Adriana Zehbrauskas of Humberto Campana (left) and Fernando Campana (right) seated in their Vermelha chair for Edra



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Last fall I was in a bit of a conundrum. I needed to add some warmth and character to my glass programs, but the trend in glassmaking had long been away from the rustic and towards the highly refined. So I went to the Bisazza family of Vicenza, Italy, for advice. Marco Bisazza's family founded its prestigious glass company in 1956 just outside of Vicenza in the romantic town of Alta di Montecchio—the purported home of Romeo and Juliet—where they started out hand-pouring glass into handmade molds. Over the years they had evolved their process to become world-renowned for vibrant glass tile manufactured to perfection. But I was interested in their past. I wanted handcrafted edges and a more translucent color. Always the gentleman, Marco listened attentively and after some coaxing, he kindly agreed. I was ecstatic. He arranged for the original Bisazza equipment to be unearthed and its founding artists to be called in. I couldn't wait to see the samples, and when I did, it was love at first sight. I named this lustrous program Loom because you can see the gentle movements of its colors as if woven by hand.

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